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# *The Home book for young ladies*

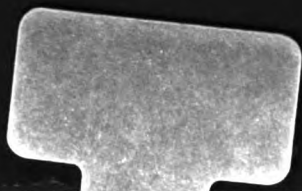
Laura Valentine, Dalziel Brothers







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THE HOME BOOK  
*FOR YOUNG LADIES.*







*Front.*

THE HOME CIRCLE

THE  
HOME BOOK.

FOR

Young Ladies.



London:  
ROBERT WARNE AND CO.,  
15, BEDFORD SQUARE, STRAND.





# THE HOME BOOK.

FOR

Young Ladies.



London :  
FREDERICK WARNE AND CO.,  
BEDFORD STREET, STRAND.



THE  
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Young Ladies.



London :  
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BEDFORD STREET, STRAND.



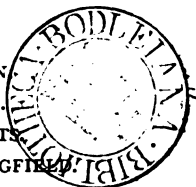
THE  
HOME BOOK  
FOR  
YOUNG LADIES.

EDITED BY MRS. VALENTINE,  
*Editor of the "Girl's Own Book," "Aunt Louisa's Picture Books," etc.*

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MISS STEPHENS.  
ALBERT WARREN.  
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ELIZABETH WATTS.  
MISS MARY WINGFIELD.  
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WITH TWO HUNDRED AND FIFTY ORIGINAL ILLUSTRATIONS,  
*Engraved by the Brothers Dalziel.*

London:  
FREDERICK WARNE AND CO.,  
BEDFORD STREET, STRAND.  
NEW YORK: SCRIBNER, WELFORD, AND ARMSTRONG.





## PREFACE.

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IN offering an altered, and, we hope, improved HOME BOOK to the Young Ladies of the British Empire, we have to explain that the lapse of ten years since the first edition appeared has made many changes necessary. Our Young Ladies have accepted new out-of-door sports, and have taken to new and certainly more artistic needlework. In fact, the latter change is rather a remarkable one: the "Point Lace" and "Embroidery" of the present day being a return to the work which once made Englishwomen famous on the Continent.

So much to be added implied something to be left out. Therefore, the former HOME BOOK has given up its childish portion, to appear separately as the LITTLE GIRL'S HOME BOOK, and has become a manual for Young Ladies of more advanced age.

It is hoped that in its new form it may find the favour it originally met from the youthful public.

In one respect the old form has been faithfully adhered to—every game, or accomplishment, or work, has been described *fully and*



*practically*, and, we believe, thoroughly: not merely mentioned with a reference to other books of instruction.

We have not admitted Cookery or Dancing, because the first can be better learned and in a fuller manner from Messrs. Warne's "Cookery Books," if Young Ladies have a turn that way; and, indeed, the works on the subject are endless, and the latter cannot be taught by the pen.

The articles on every subject have been contributed by writers practically conversant with them; and the Editor solicits her young readers to favour her with any suggestions which may occur to them for the perfecting of future editions.

We must just add that the contributions by eminent writers to the former HOME BOOK have all been retained.





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# THE HOME BOOK

## *FOR YOUNG LADIES.*



### OPEN-AIR PASTIMES.

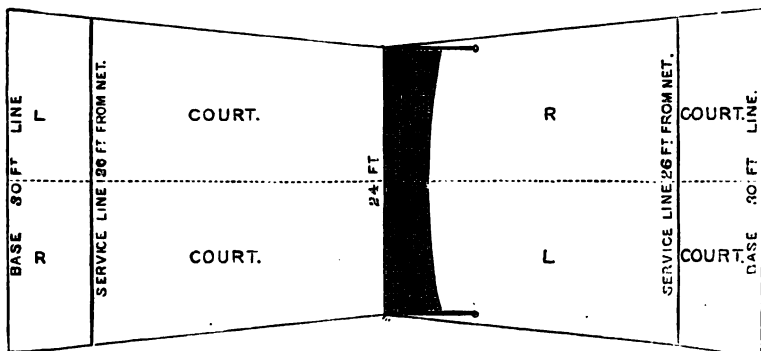
#### LAWN TENNIS.

This game derives its name from the fact that it requires no court, but can be played on a lawn at a small cost of fittings. These consist only of two poles, a net, and a few rackets and balls.

The ground is set out as follows, the dimensions being those used at

## Open-Air Pastimes.

Lord's; but they may be varied to suit the space available. First the two posts are set up, 24 feet apart, and the net so hung that it is 5 feet from the ground where it touches the poles, and 4 feet from the ground in the middle. The form of the court is shown in the following engraving.



The rules of the game are shortly as follows: The players take their stand on opposite sides of this net. The player who "serves"—*i.e.*, gives the first stroke—stands in one of the courts with one foot beyond the base line. She then strikes the ball over the net so that it falls in the diagonal court, and within the server's line. After it has touched the ground, the opponent tries to strike it over the net again. Should she fail, or send the ball beyond the base line, the first player, or "hand in," scores one point. Should she succeed, and "hand in" fail to return it properly, the other player becomes "hand in." It will be seen, therefore, that only the "hand in" can score, and that, in case of her failure, she and "hand out" change places.

It is not allowed to "volley" a ball—*i.e.*, strike it before it has touched the ground. The stroke is lost if the ball touch any part of a player or her clothes, or if it be struck more than once. Fifteen points constitute the game. This is the outline of lawn tennis. The full rules, drawn up by the Marylebone Club, can be easily obtained.

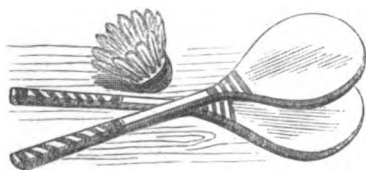
## BADMINTON.

Badminton rather resembles lawn tennis, but it is played with battledores and shuttlecocks over a net.

The dimensions of ground required to be set apart for the game are 60 feet long and 30 feet wide. The net is stretched across the hall or lawn, and the cord, having been affixed at top and bottom to the standard, is to

be secured to a stake or peg driven into the ground at each end of the net. The net divides the ground into two parts; each part must again be divided into two by marking with chalk or by a cord through the centre of the net. At 3 feet distance on each side of the net a line is to be drawn, and this is termed the serving crease.

Four players on each side, or eight, are the ordinary number. If the players are many, the score of the game is 29; if few, 21. The side first to serve is determined by lot, and in order to equalize the chances, only half the number of players thus selected serve in the first innings. After the first innings all the opponents serve, and then all the others in rotation.



The battledore must never be raised higher than the elbow, and the shuttlecock must be struck invariably underhand the first play. At other times it may be struck either over or under, but only under when serving.

The game begins by the serving player standing in the court on her right hand, and throwing or serving the shuttlecock into the opposite diagonal court. If the opponent player does not meet and drive it back before it touches the ground, then the first player scores one, and at once removes into the court to the left of that in which she stands, and another server takes her place, and throws the shuttlecock.

If the adversary termed the servee strike the shuttlecock back, and the server, or first player, miss it, then the latter is out—this is called a “hand out”—and another player of her side takes her place, but then the *servees* score one. If the server miss the shuttlecock in the act of serving, or strike it overhand, she is out. If the shuttlecock does not clear the net, or if it fall within the serving crease on the other side, if she serve it into the wrong court, or beyond the boundary, she is out, and the others score.

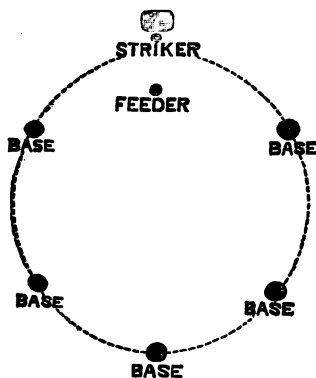
When all on one side have served, the other party become servers. The servers score a point each time that the shuttlecock is missed by the adversary, or not struck back clear of the net, or if struck beyond the boundary. The winners of a game become servers in the following one.

### ROUNDERS.

The rackets and balls of lawn tennis suffice to play this game. The ground for the home is marked out by four sticks stuck in the ground, or by four stones, or by a line scratched on the ground, and the five bases are marked at a distance of about fifteen yards apart each by a stick or stone.

The players divide into parties, and toss up for innings, the winning party taking possession of the home, while the others go outside it. The leader of the out side disposes her followers as she thinks best for the game, takes the ball, and places herself as feeder, in readiness to throw the ball or to feed the successive strikers of the inning side.

The game begins by one of the inning side coming to the front of the home, in readiness to strike the ball as it is served to her by the feeder. Sometimes the ball is struck by the hand, but a racket or battledore is better. Armed with these, the "inning" side present themselves in succession to the front of the home, to receive the ball from the feeder. Each striker is allowed to pass by as many balls as she likes without striking, until she gets one that suits her.



If in striking she miss the ball or tip it behind the home (*i.e.*, behind the front line), or if it be caught by one of the field (*i.e.*, the out siders) before touching the ground, she is out and stands on one side. If, however, she succeed in hitting it safely away, she throws down the racket and runs for the base nearest to her on her right, and thence, if she has time before the ball is thrown up, to the next, and so on, striving, if possible, to get completely round and home again before the ball is fielded and returned. If she succeed in this she has gained a *rounder*, her side scores one towards the honour of the game; the side scoring most rounders during their "innings" being the winners. If, however, while running between the bases, she is struck by the ball, she is out, and stands on one side.

When all the inning side but two are thus out, they may call for rounders. The better player of the two then takes the racket, and is allowed three chances at the ball for the rounder, that is, she may strike three times at the ball instead of only once, and may make her own choice at which time she will run round the circle. Having once run, she must accept the chances of the game as before.

The "rounder" is not allowed unless the round is made clear. If the ball be sent up and put in the home, or if the runner be hit by the ball at any period of running her round—the bases afford her no protection—then the inning side is out, and the out siders take their places.

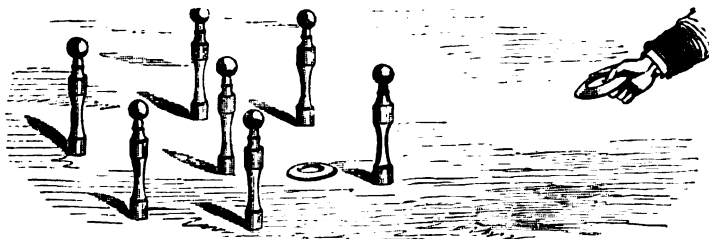
If, however, the "rounder" be achieved, the whole of the inning side are in again.

With careful hitting on the part of the inning side, and active fielding on the out side, it is a very amusing game.

The striker must hit the ball away where the field is most open. The real art of the game is in the fielding. A fielder, besides looking out for a catch off the racket, must always be ready to back up when another fielder is having a shy at the runner.

The runner is not allowed to leave a base and return, except she leave it before the ball is out of the feeder's hand. If so, she must return to it, subject to the chance of being hit by the ball, and so being put out; and in running from base to base, she is not allowed to deviate from the straight line between the bases. If the ball strike her dress she is out.

The ball for rounders, as it is meant to strike the person, should be very light: tennis balls do well.



### LAWN CUPOLETTE.

This game is played by means of seven pins, made so that they may be driven into the ground. Each pin is numbered, from one to seven. There is a slight cup at the top of the pins.

To play the game, six of the pins are fixed in a circle, with the seventh in the middle; and the players, standing at a given distance, take the wooden quoits, with which they try to knock the balls out of the cups. Before playing, they must name the pin at which they aim, and if they strike off the ball belonging to any other pin, the score goes to the adversary. If, however, they knock off the ball at which they aim, and by the same throw strike off one or more besides, they may score them all.

In another version of the game, if the player can strike off the seven balls and have one or more quoits to spare, she may try to throw the quoits so as to fall upon the pins, and for every case in which she succeeds she adds the number of the pin to her score.



## LAWN BILLIARDS.

This game is a favourite in many places, and is useful in one respect, namely, that it can be played in a comparatively limited space. Indeed, a large lawn is unsuitable to the game, and if the ground be of too great dimensions, it will be better to enclose a circular space.

The materials for the game are simple. In the first place there are eight or ten balls of different colours, a stick or cue by which to propel them,



and a revolving ring through which they are to be passed. We will describe these articles in rotation.

The balls are generally a foot in circumference, and ought to be made of some hard and heavy wood. An ordinary set of croquet balls will answer the purpose perfectly well.

The ring is usually made of iron, though brass is perhaps better, and, as may be seen in the diagram, has a shank or neck. When it is to be used, a large wooden peg is driven into the ground, with the top a little below the surface, and into it a hole is bored, large enough to receive the shank of the ring, and to let it revolve freely.

The cue is made of two parts, namely, a wooden handle and metal tip of rather a peculiar shape. The reader will see, by reference to the illustration, that this tip is also ring-shaped, and that it is fixed at an angle with the handle. This formation enables the ball to be played better than if the cue and tip were in a line. Sometimes each player has a cue, but as a general rule one cue only is required, and is handed round to the players in succession.

The objects of the game are very simple, and the rules scarcely less so. Each player endeavours to pass the ball through the ring, and every time he or she can do so one point is scored. If the ball runs through the ring after striking another ball, the player adds two to her score. The ball must not be pushed through the ring with the cue touching it, neither may it be thrown through. After making a successful stroke, the player does not go on with the game, as in croquet, but makes way for the next player.

In this game there is more play than at first appears to be the case. If, for example, a player finds the hoop turned edgewise to her, she can either place her own ball so as to obstruct the next stroke of the enemy, or, by dexterous play at the ring, can turn it edgewise to the enemy next in succession. Sometimes she will strike a ball belonging to her own party so as

to put it into position, or will strike away the ball of an enemy who seems likely to make a successful stroke.

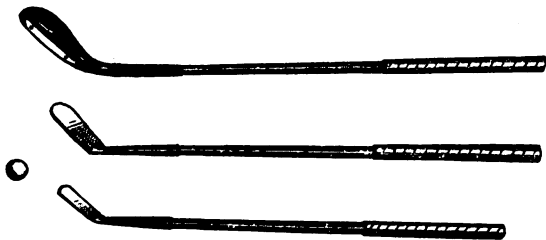
A really good player will often contrive to pass the ring even though it be almost edgewise to her. If the ring be turned in the least to one side or the other, she will play at it with a peculiar push of her cue, and strike it a little on one side. If this be properly done, and with moderate force, the ring spins round, and catches the ball in its progress. The effect of this sudden shock is, that the ball vibrates backwards and forwards for a moment, and finally settles on the opposite side of the hoop.

Half the amusement of this game consists in having a ring only just large enough to let the balls pass through, and so neatly poised as to revolve with a touch. The best plan for securing this latter point is to have a metal socket let into the wooden peg. If so, care must be taken that the socket be brass if the ring be iron, and *vice versa*. Both shank and socket should be kept well oiled.

## GOLF.

Golf (pronounced *goff*) is chiefly a Scotch game, but it is played in many parts of England where there is a suitable piece of common land in the neighbourhood, and ladies both on the Scottish links and in England join in this game.

It is played with a ball about  $1\frac{1}{2}$  inches in diameter, now-a-days made of gutta-percha, but formerly of leather stuffed with feathers, and painted white. This ball is driven along the ground or through the air by clubs of various



shapes and constructions, to be severally employed according to the nature of the ground. Each player has her own ball and her own set of clubs, which latter are carried by an attendant, technically termed a "caddie."

The game is played as follows: A series of small holes, four inches in diameter, are cut in the turf at a distance of from one to four hundred yards apart, according to the capabilities of the ground, on the circumference of a great circle, and the rival players, starting from beside the first hole, work round the circle, each endeavouring to "make her holes" in a less number of strokes than her antagonist, and they count for game thus:

Supposing A and B to be playing, A makes his or her first hole in five strokes, B in six; A counts one to her game. The next hole B wins; they are now one and one. The next two perhaps they achieve in the same number of strokes. These count to neither, or, what comes to the same thing, they are "halved." If A then manages thus to make more holes than B, she is declared winner by so many holes.

Space would fail to enter fully into the minutiae of the game; a few hints as to the correct way of standing and hitting, with some general remarks, are all that can be compassed here.

First, to hold and use the club. Grasp the handle with both hands firmly but not too tight, lift it slowly over the right shoulder, and bring it down smartly but steadily on the ball, letting the lower surface of the butt-end just skim the ground. The action should be more of a steady sweep than a blow, and the club must be allowed to follow on its swing after the ball, and not be brought up abruptly after the stroke.

Accuracy and clean hitting are far more effective than hard hitting, and should be specially studied: if the ball be only taken properly, a comparatively slight muscular exertion will send it an amazing distance.

But it is not only a true and correct style of hitting that will serve the purpose of the striker; it is indispensable that she should also *stand* correctly. A very slight error in this important item will entirely vitiate all the results of even the most scientific manipulation of the club.

The feet should be set firmly on the ground, a short space apart, the toe of the left foot opposite the ball, and at a distance exactly proportioned to the length of the handle of the club employed. If the striker be too near, the ball is liable to be taken by the heel of the club—technically "heeled"—and will have a tendency to the right of the direct line. If too far from it, the club is apt to take the ball with its "toe," or extremity, thus "drawing" or "hooking" it to the left of the true line.

But this correct driving of the ball is, after all, only the very A B C of the game; the real triumph of skill is in accurate and judicious "putting," (pronounced as in *cutting*). When the ball has been driven up to within a few yards of a hole, the novice would suppose that the most important part of her work was over, whereas, on the contrary, the real struggle for the hole is only just going to begin.

So many circumstances have to be taken into consideration in making a "put" (pronounced as in *cut*),—the nature and "lie" of the ground; the strength required to traverse the exact distance and no farther; the position of one's own ball, and very often the position of the adversary's, which may chance to be between it and the hole; and last, though very often not least, the general condition of the game, by which may be decided whether to play boldly or cautiously. With all these against her, it will not be surprising that as a general thing "putting" is the last thing in which a player acquires real proficiency.

For much of our information in this interesting game we are indebted to the kindness of Messrs. Chambers, to whose excellent little handbook on

Golf we would refer those who desire further information than our limited space enables us to afford.

## ARCHERY.

In the earliest period of the existence of the world, Archery was employed as a means for obtaining food. We read of it very nearly 1,800 years before the birth of Christ, when Isaac desires his son Esau to take his weapons, his quiver, and his bow, and go out to the fields to find venison. In the excavations at Nineveh, bas-reliefs of warriors were found represented with bows and arrows in warlike attitudes. Again, the Assyrian is sculptured in his chariot armed with his bow in the lion hunt. Until the last few centuries, archery was the chief weapon employed as a defence in this country. Statutes were made for its encouragement, and the city of London was compelled by the legislature to erect butts for the purpose of target practice. William Rufus met his death in the New Forest, when engaged in his favourite sport of hunting, from a fork-headed arrow (intended by his companion, Tyrrell, for a bounding hart) glancing aside in its flight, against a tree. It pierced the breast of the monarch, and caused him to expire immediately. Cœur de Lion, with only seventeen knights and 300 archers, on one occasion during the Holy Wars sustained the whole charge of a Turkish and Saracen army. Richard is said to have been the inventor of the crossbow, and a quarrel accidentally discharged from one of them so deeply penetrated his shoulder that it ultimately caused his death. The battle of Cressy is mainly attributed to the skill of the English archers, who, Froissart tells us, "shot with such force and quickness that it seemed as if it snowed." In the church of Soest, in Germany, large chests are preserved containing many thousand quarrels which were employed for the defence of the place in the fourteenth century. In the civil wars between the White and Red Roses there is every reason to suppose that great slaughter was occasioned by the use of arrows. The latest mention of archery as a warlike weapon occurs in the time of Charles I., when the Marquis of Montrose employed it against the Scots. The skill and prowess of Robin Hood and his brave companions have become almost household words; and the touching story of William Tell has given a sacred charm to the arrow. But archery is no longer required for the defence of our island home. It has become, instead, merely an amusement, and is of use only as a mode of exercise, and for ensuring correctness of eye and hand. The national love for it lingers still with our young people, however, and there is no pastime pleasanter or more in character with the "greenwood" than that of archery; while its prizes are worn with innocent pride by the descendants of those archers who were said to hold "twelve men's lives in their girdle." Having been ourselves honoured by a place amidst successful competitors at this game, we venture to offer to the young readers of the HOME BOOK some few hints on archery. And, first, with regard to our weapons.

Bows are made of various kinds of wood—Italian and English yew, lance,

cocus, rose, snake, and some others. A self-yew bow is beyond all doubt the best, and next to it ranks the lancewood. It is very important, in the choice of a bow, to see that it be free from knots, as it is very liable to snap where one occurs. The length of a lady's bow varies from 5 feet to 5 feet 6 inches; they are weighted, and marked from 25 to 32 lbs. The one selected for use should depend upon the strength of the lady archer. The self bow may be made in one piece, or in two pieces dovetailed together at the handle. The back bows are made of two or more strips of wood compressed together very firmly. American and wych elm, lance, hornbeam, and other inferior woods are employed in the manufacture of them. A self bow is highly preferable on all occasions. Great care must be observed in stringing to see that the flat or back part of the bow be outside; if bent the contrary way, it is easily broken. The hand-piece must be firmly held, placing the small horn, where the string is fastened, against the hollow of the foot. This must be turned, to prevent the bow from slipping. Keep the wrist of the left hand pressed to the side, and with the other hand cause the wrist to bend the bow, when the upper end of the string may be easily slipped into the nock with the finger and thumb.

Arrows should be selected with judgment, and in proportion to the length and strength of the bow for which they are required. They measure from twenty-four to twenty-five inches, and weigh in silver coin from 2s. 3d. to 3s. 3d. A heavier arrow may be used for a long distance. The arrow, which should fit the string easily, is furnished with three feathers; the single one, of a different colour, must in shooting be placed uppermost, and on the outside of the bow; holding the nock of it between the two fore-fingers at the time of drawing will prevent the string from turning and the arrow from going aside. Arrows should be kept in a quiver made of tin, which preserves them from damp, and is a great protection to the feathers. The quiver is not usually worn at target practice, but a belt, which buckles round the waist, made generally of leather, with a pouch on the right side to hold arrows for present use; on the left is affixed a tassel, which is indispensable for wiping off any dirt which may adhere to the arrow when drawn from the ground. The grease-box is also an important accompaniment to the belt. This is made of wood, horn, or ivory, and contains a composition to rub occasionally upon the shield or brace, and glove or finger-tips, that the string may more readily leave them. The shield or brace, made of stout leather, buckles round the left arm, and prevents the string from hurting it. The glove or finger-tips, also made of leather, should fit easily.

Targets are made of straw strongly bound together with tarred string, and covered with strong canvas, upon which is painted five circles. These are valued as follows: The outer white counts one; the black, three; the inner white or blue, five; the red, seven; and the centre gold, nine. Targets are made to vary in size from 1 to 4 feet in diameter. A pair should always be used for practice, and the largest size is preferable. The distance for ladies to shoot is fifty and sixty yards. A beginner may commence her practice at twenty yards, and increase the distance as she gets command over her bow. Six dozen arrows shot at a time is a sufficient number for

practice, of which four dozen may be used for the long distance and the other two dozen shot at fifty yards. The centre of the target should be 4 feet from the ground, placed upon a stand in a slanting position.

Much might be said practically about shooting : it is only time and experience that will enable the archeress to overcome difficulties. Attitude is a matter of much importance. The body should be upright, and the bow firmly held by a steady hand, so that when the string is pulled the arrow may fly straight. Aiming is a matter of practice, and the mark to be hit can only be achieved by the eye being kept upon it. Elevation of the arrow is an important point, and its position in the target cannot be calculated upon but by the greatest attention, perseverance, and practice. The right hand should begin to draw the string as the left raises the bow. When the arrow is three parts drawn, aim is taken, and the eye steadily fixed on it. The point of the arrow should appear to the right of the mark at which you aim, and the arrow when drawn should be close to the ear. Three arrows at a time only are shot from one target to the other. They should be carefully cleaned and rubbed with an oily flannel before they are put away, and the bow should be unstrung immediately the shooting is over. The same directions may be observed for this as in the stringing of the bow, only that it will require to be bent a little more. A lady's archery equipment varies in price from £2 to £5. There is no saving in having common materials, and in the purchase of them let everything be of the best. In the summer months, when the delightful gatherings of the Toxophilites take place, when the bright green jackets are seen, and the waving feather adorns the hat, let us fondly hope that the fair archeress will strive to gain for her motto, "*Pete centrum.*"

## CROQUET.

This is a game of very modern invention,\* and yet, in a few years, it has forced its way into such extraordinary popularity, that there is not a parish in the kingdom where the game is not known—scarcely a lawn, suitable or unsuitable, where the hoops may not be seen ; scarcely a house of any pretensions above those of the labourer's cottage, in whose entrance hall or passage the long white deal box, which tells of mallets and balls within, is not a prominent object.

Since the game first made its way into general popularity, many important modifications have been introduced not only into the method of play, but even into the construction and material of its instruments.

The following code of rules is called the "Field" Code. Although it is not the only code, it has been adopted here as being in the writer's opinion,

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\* But it is supposed to be the same as that called "Pall Mall," which our forefathers used to play in the meadows which bore its name, and which we still know by the same appellation, though they are now built over and become part of the town.—Ed.

and in that of the friends he has consulted, perhaps the most satisfactory, taking all in all, of all extant codes. Indeed, there is but one other, the "All England" Code, which holds any position at all beside it.

### RECOMMENDATIONS OF THE "FIELD" COMMITTEE.

A full-sized croquet ground should measure 40 yards by 30 yards. Its boundaries should be accurately defined.

The *Hoops* should be of half-inch round iron, and should not be more than 6 inches in width, inside measurement. The crown of the hoop should be at least 12 inches clear of the ground. A hoop with the crown at right angles to the legs is to be preferred.

The *Pegs* should be of uniform diameter of not less than  $1\frac{1}{2}$  inch, and should stand at least 18 inches above the ground.

The *Balls* should be of boxwood, and should not weigh less than 14 ounces each.

The **FOUR-BALL GAME** is recommended for adoption in preference to any other.

When odds are given, the *Bisque* is recommended. A bisque is an extra stroke, which may be taken at any time during the game in continuation of the turn. A player receiving a bisque cannot roquet a ball twice in the same turn without making an intermediate point. In other respects a bisque confers all the advantages of an extra turn. A player receiving two or more bisques cannot take more than one in the same turn. Passing the boundary, or making a foul stroke, does not prevent the player taking a bisque.

The following *Settings* are recommended :

No. 1. *Eight-Hoop Setting*.—Distances on a full-sized ground : Pegs 3 yards from boundary ; first and corresponding hoop 5 yards from pegs ; centre hoops midway between first and sixth hoops, and 5 yards from each other ; corner hoops 6 yards from end of ground, and 5 yards from side. Starting spot 2 feet in front of first hoop, and opposite its centre.

No. 2. *Seven-Hoop Setting*.—Distances on a full-sized ground : Pegs in centre line of ground 8 yards from nearest boundary. Hoops up centre line of ground 6 yards from peg, and 6 yards apart ; corner hoops 7 yards from centre, and in a line with pegs. Starting spot  $1\frac{1}{2}$  yard from first hoop in centre line of ground.

No. 3. *Six-Hoop Setting*.—Distances on a full-sized ground as in No. 2, except the middle-line hoops, 8 yards apart. Starting spot 1 foot from left-hand corner hoop, and opposite its centre.

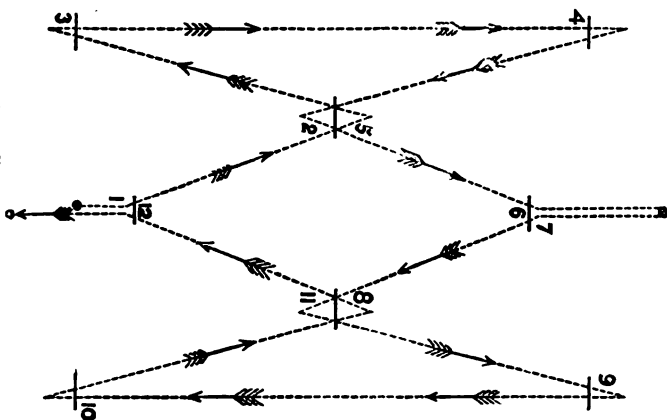
It is essential to match play that bystanders should abstain from walking over the grounds, speaking to the players and the umpires, making remarks upon them aloud, or in any way distracting their attention.

### DEFINITIONS.

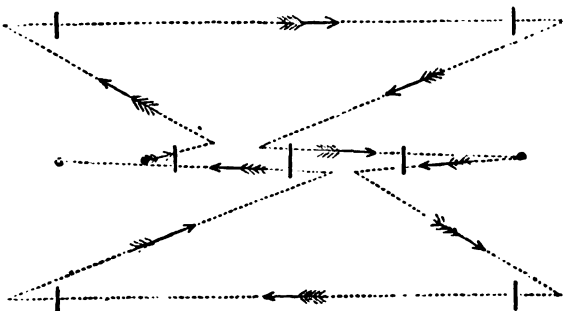
A *Point* is made when a hoop is run, or a peg is hit, in order.

The striker's hoop or peg *in order* is the one he has next to make. The order is shown by dotted lines in the diagrams of settings.

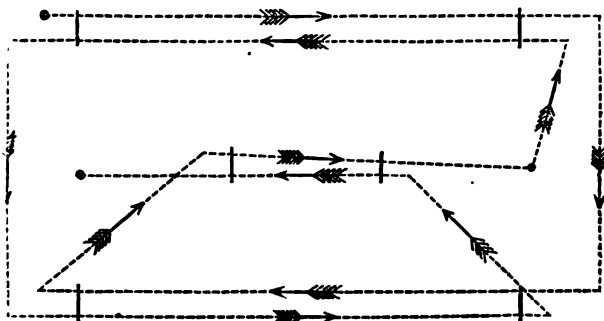
No. 1—EIGHT-HOOP SETTING.



No. 2—SEVEN-HOOP SETTING.



No. 3—SIX-HOOP SETTING.





A *Roquet* is made when the striker's ball is caused by a blow of the mallet to hit another which it has not before hit in the same turn since making a point.

The striker's ball is said to be *in play* until it roquets another. Having made roquet, it is *in hand* until croquet is taken. *Croquet* is taken by placing the striker's ball in contact with the one roqueted, the striker then hitting her own ball with the mallet. The non-striker's ball, when moved by a croquet, is called the *croqueted ball*.

A *Rover* is a ball that has made all its points in order except the winning peg.

### THE LAWS OF CROQUET.

1. *Mallets*.—There should be no restriction as to the number, weight, size, shape, or material of the mallets; nor as to the attitude or position of the striker; nor as to the part of the mallet held, provided the ball be not struck with the handle, nor the mace stroke used.
2. *Size of Balls*.—The balls used in match play shall be 3½ inches in diameter.
3. *Choice of Lead and of Balls*.—It shall be decided by lot which side shall have choice of lead and of balls. In a succession of games the choice of lead shall be alternate, the sides keeping the same balls.
4. *Commencement of Game*.—In commencing, each ball shall be placed on the starting spot (see Settings). The striker's ball, when so placed and struck, is at once in play, and can roquet another, or be roqueted, whether it has made the first hoop or not.
5. *Stroke, when taken*.—A stroke is considered to be taken if a ball be moved in the act of striking; but should a player, in taking aim, move her ball accidentally, it must be replaced to the satisfaction of the adversary, and the stroke be then taken. If a ball be moved in taking aim, and then struck without being replaced, the stroke is foul (see Law 25).
6. *Hoop, when run*.—A ball has run its hoop when, having passed through from the playing side and ceased to roll, it cannot be touched by a straight-edge placed against the wires on the side from which it was played.
7. *Ball driven partly through Hoop*.—A ball driven partly through its hoop from the non-playing side, cannot run the hoop at its next stroke, if it can be touched by a straight-edge placed against the wires on the non-playing side.
8. *Points counted to Non-Striker's Ball*.—A ball driven through its hoop, or against the turning-peg, by any stroke not foul, whether of its own or of the adverse side, counts the point so made.
9. *Points made for Adversary's Ball*.—If a point be made for an adversary's ball, the striker must inform her adversary of it. Should

the striker neglect to do so, and the adversary make the point again, she may continue her turn as though she had played for her right point.

10. *The Turn*.—A player, when her turn comes round, may roquet each ball once, and may do this again after each point made. The player continues her turn so long as she makes a point or a roquet.
11. *Croquet imperative after Roquet*.—A player who roquets a ball must take croquet, and in so doing must move both balls (see Law 25). In taking croquet, the striker is not allowed to place her foot on the ball.
12. *Ball in hand after Roquet*.—No point or roquet can be made by a ball which is in hand. If a ball in hand displace any other balls, they must remain where they are driven. Any point made in consequence of such displacement counts, notwithstanding that the ball displacing them is in hand.
13. *Balls Roqueted simultaneously*.—When a player roquets two balls simultaneously, she may choose from which of them she will take croquet; and a second roquet will be required before she can take croquet from the other ball.
14. *Balls found Touching*.—If at the commencement of a turn the striker's ball be found touching another, roquet is deemed to be made, and croquet must be taken at once.
15. *Roquet and Hoop made by same Stroke*.—Should a ball, in making its hoop, roquet another that lies beyond the hoop, and then pass through, the hoop counts as well as the roquet. A ball is deemed to be beyond the hoop if it lies so that it cannot be touched by a straight-edge placed against the wires on the playing side. Should any part of the ball that is roqueted be lying on the playing side of the hoop, the roquet counts, but not the hoop.
16. *Pegging out*.—If a rover (except when in hand) be caused to hit the winning peg by any stroke of the same side, not foul, the rover is out of the game, and must be removed from the ground. A rover may similarly be pegged out by an adverse rover.
17. *Rover pegged out by Roquet*.—A player who pegs out a rover by a roquet loses the remainder of her turn.
18. *Balls sent off the Ground*.—A ball sent off the ground must at once be replaced 3 feet within the boundary, measured from the spot where it went off, and at right angles to the margin. If this spot be already occupied, the ball last sent off is to be placed anywhere in contact with the other, at the option of the player sending off the ball.
19. *Ball sent off near Corner*.—A ball sent off within 3 feet of a corner is to be replaced 3 feet from both boundaries.
20. *Ball touching Boundary*.—If the boundary be marked by a line on the turf, a ball touching the line is deemed to have been off the ground. If the boundary be raised, a ball touching the boundary is similarly deemed to have been off the ground.
21. *Ball sent off and returning to Ground*.—If a ball be sent off the

- ground, and return to it, the ball must be similarly replaced, measuring from the point of first contact with the boundary.
22. *Ball sent within 3 feet of Boundary.*—A ball sent within 3 feet of the boundary, but not off the ground, is to be replaced as though it had been sent off—except in the case of the striker's ball, when the striker has the option of bringing her ball in, or of playing from where it lies.
23. *Boundary interfering with Stroke.*—If it be found that the height of the boundary interferes with the stroke, the striker, with the sanction of the umpire, may bring in the balls a longer distance than 3 feet, so as to allow a free swing of the mallet. Balls so brought in must be moved in the line of aim.
24. *Dead Boundary.*—If, in taking croquet, the striker send her own ball, or the ball croqueted, off the ground, she loses the remainder of her turn; but if by the same stroke she make a roquet, her ball, being in hand, may pass the boundary without penalty. Should either ball while rolling after a croquet be touched or diverted from its course by an opponent, the striker has the option given her by Law 26, and is not liable to lose her turn should the ball which has been touched or diverted pass the boundary.
25. *Foul Strokes.*—If a player make a foul stroke, she loses the remainder of her turn, and any point or roquet made by such stroke does not count. Balls moved by a foul stroke are to remain where they lie, or be replaced, at the option of the adversary. If the foul be made when taking croquet, and the adversary elect to have the balls replaced, they must be replaced in contact as they stood when the croquet was taken. The following are foul strokes:
- (a) To strike with the mallet another ball instead of or besides one's own in making the stroke.
  - (b) To spoon, *i.e.*, to push a ball without an audible knock.
  - (c) To strike a ball twice in the same stroke.
  - (d) To touch, stop, or divert the course of a ball when in play and rolling, whether this be done by the striker or her partner.
  - (e) To allow a ball to touch the mallet in rebounding from a peg or wire.
  - (f) To move a ball which lies close to a peg or wire by striking the peg or wire.
  - (g) To press a ball round a peg or wire (crushing stroke).
  - (h) To play a stroke after roquet without taking croquet.
  - (i) To fail to move both balls in taking croquet.
  - (k) To croquet a ball which the striker is not entitled to croquet.
26. *Balls touched by Adversary.*—Should a ball when rolling, except it be in hand, be touched, stopped, or diverted from its course by an adversary, the striker may elect whether she will take the stroke again, or whether the ball shall remain where it stopped, or be placed where, in the judgment of the umpire, it would have rolled to.
27. *Balls stopped or diverted by Umpire.*—Should a ball be stopped or

diverted from its course by an umpire, she is to place it where she considers it would have rolled to.

28. *Playing out of Turn, or with the Wrong Ball.*—If a player play out of turn, or with the wrong ball, the remainder of the turn is lost, and any point or roquet made after the mistake. The balls remain where they lie when the penalty is claimed, or are replaced as they were before the last stroke was made, at the option of the adversary. But if the adverse side play without claiming the penalty, the turn holds good, and any point or points made after the mistake are scored to the ball by which they have been made—that is, the ball is deemed to be for the point next in order to the last point made in the turn—except when the adversary's ball has been played with, in which case the points are scored to the ball which ought to have been played with. If more than one ball be played with during the turn, all points made during the turn, whether before or after the mistake, are scored to the ball last played with. Whether the penalty be claimed or not, the adversary may follow with either ball of her own side.
  29. *Playing for Wrong Point.*—If a player make a wrong point it does not count, and therefore—unless she have, by the same stroke, taken croquet, or made a roquet—all subsequent strokes are in error, the remainder of the turn is lost, and any point or roquet made after the mistake. The balls remain where they lie when the penalty is claimed, or are replaced as they were before the last stroke was made, at the option of the adversary. But if the player make another point, or the adverse side play, before the penalty is claimed, the turn holds good; and the player who made the mistake is deemed to be for the point next in order to that which she last made.
  30. *Information as to Score.*—Every player is entitled to be informed which is the next point of any ball.
- State of Game, if disputed.*—When clips are used, their position, in case of dispute, shall be conclusive as to the position of the balls in the game.
32. *Wires knocked out of Ground.*—Should a player, in trying to run her hoop, knock a wire of that hoop out of the ground with her ball, the hoop does not count. The ball must be replaced, and the stroke taken again; but if by the same stroke a roquet be made, the striker may elect whether she will claim the roquet or have the balls replaced.
  33. *Pegs or Hoops not Upright.*—Any player may set upright a peg or hoop, except the one next in order; and that must not be altered except by the umpire.
  34. *Ball lying in a Hole or on Bad Ground.*—A ball lying in a hole or on bad ground may be moved with the sanction of the umpire. The ball must be put back—*i.e.*, away from the object aimed at—and so as not to alter the line of aim.
  35. *Umpires.*—An umpire shall not give her opinion, or notice any error that may be made, unless appealed to by one of the players. The

decision of an umpire, when appealed to, shall be final. The duties of an umpire are—

- (a) To decide matters in dispute during the game, if appealed to.
  - (b) To keep the score, and, if asked by a player, to disclose the state of it.
  - (c) To move the clips, or to see that they are properly moved.
  - (d) To replace balls sent off the ground, or to see that they are properly replaced.
  - (e) To adjust the hoops or pegs not upright, or to see that they are properly adjusted.
36. *Absence of Umpire*.—When there is no umpire present, permission to move a ball, or to set up a peg or hoop, or other indulgence for which an umpire would be appealed to, must be asked of the other side.
37. *Appeal to Referee*.—Should an umpire be unable to decide any point at issue, she may appeal to the referee, whose decision shall be final; but no player may appeal to the referee from the decision of an umpire.

#### OBSERVATIONS ON RULES.

*Rule 1*.—In the early days of the game there was much difference of opinion, and often much jealousy, about the mallets. On many grounds a player was not allowed to use any mallet but those provided by the ground. There was naturally much resistance to this amongst real players, and at last common sense prevailed, so that now-a-days hardly any one who can lay any claim to be a player would think of being unprovided with a private mallet. At billiards men use their own cues, at cricket their own bats, in rowing their own sculls, and so on in all other games: what possible objection can there be to the same custom in the case of croquet?

The real cause of the opposition was that the “duffers” perceived too plainly that the “players” scored so very much better with their own well-made and well-balanced weapons, than with the ordinary indifferent mallets usually provided, that they had no chance at all against them.

There was another grand stand made in the case of allowing a multiplicity of mallets; but here effectual appeal was made to the precedent of golf, where a whole army of “clubs” is used by each player, and of billiards, where long and short cues are used according to the exigencies of the situation; and the point has been finally conceded.

For ourselves, we recommend each player to provide herself with at least two mallets. One with a short handle and short head, something like the old original pattern; this only for occasional use, and to be kept neat and natty, only because a good workman likes always to have his tools clean and bright, as well as keen and fit for use. The other, with which she will have to do most of her work, should be as carefully chosen and as carefully adjusted to her height and strength as ought a cricket bat.

Its head should be of *lignum vitæ*, for choice; if not, of the best Turkey box, and the handle of good sound ash. The head should be not *less* than

9 in. in length; the diameter should be about 3 in.; this may be increased or diminished—the latter but very slightly—to suit the player. A very slight reduction in diameter (one-tenth of an inch even) makes a wonderful difference in the weight of the mallet. Both faces should be flat, and with the edges gently rounded off. The present writer has a mallet made under his own direction, of which the head is 14 inches long,  $3\frac{1}{2}$  inches in diameter—the same diameter, in fact, as the match balls; but this is exceptionally large. The practice it makes, however, is something very remarkable, nor is it in reality so difficult to wield as it at first sight appears.

The handle should be at least 3 feet in length, strong, and slightly oval, with the long axis in the same direction as the head. If the mallet be made at home, great care must be taken in insuring accuracy in this point: a very slight divergence will make the mallet very uncertain in its work. To insure a more certain grasp, it is well to bind that part of the handle where the hands come with string: coloured string is pretty, and not less workmanlike.

A better plan still is to get a saddler to cover it with leather, the soft side outside, sewn close on and the seam well beaten down. This affords a perfect hold, and yet will not chafe the softest hand or soil the most delicate glove. The present writer adopted this plan some years ago most successfully with his cricket bats, and now these leather-covered handles are becoming quite common amongst cricketers.

In the early days of small mallets there was much difference of opinion both as to the method of holding the mallet and also as to the manner of standing; but now that large mallets are almost universal amongst players, there can be but little diversity of opinion as to the essentials in either.

The new mallets *must* be held in both hands, so that there can be no division into hostile camps of one-handed and two-handed players, as of yore; nor, considering the weight to be supported, is it easy to hold them in the namby-panby way adopted by most ladies and some men, with the forefinger pointed down the handle.

By some this is supposed to be an aid to the rightful direction of the stroke, than which there can be no more mistaken notion. The writer had often puzzled himself to discover the real reason of this female idiosyncrasy, having observed that ladies hold their parasols and nearly everything else after the same feeble fashion—feeble because it detracts most seriously from the grasping power of the hand. At last, one day, having an unpresentable right hand, he found it necessary to play in a glove—of course a light kid: he at once discovered that he must either sacrifice his glove and split it up in various places, or adopt the projecting-index-finger method above mentioned: a *well-fitting* kid glove does not allow for the swelling muscles of the closed hand.

As for *Position*, the most scientifically correct, and therefore the most satisfactory, is as follows: The player should place herself in front of her ball, facing at right angles to its intended course, her feet slightly apart, her toes close up to the line of the ball, but leaving a clear course, and the body slightly bent over it. The mallet should be held with straight arms,

firmly but not stiffly, so that the mallet and arms form a kind of pendulum swinging freely from the shoulders; the mallet-head must point exactly along the line of the ball; and here is the use of a *long* head, every inch of length making it more easy to judge of and secure this vitally important condition.

Having settled these preliminaries, which with very little practice become quite mechanical, the mallet should be raised smoothly and quietly away from the ball to the height and distance requisite for the due "strength" of the stroke, and then allowed to fall back upon the ball, the stroke depending entirely upon the momentum of the mallet, and in nowise upon any muscular exertion of the striker, other than that required to raise it at first.

In this leaving the mallet to do its own work lies the true secret of sustained *accurate* play. A player may make a succession of brilliant strokes, and even keep it up for a whole afternoon or a series of afternoons, without adopting this method. A good eye and a steady hand may make up for a faulty style; but sooner or later the Nemesis must come: the eye is not always true nor the muscles steady; failure brings a sense of uncertainty, and the confidence begotten of success, which is the mainstay of your unscientific players, is no longer there to sharpen the eye and nerve the hand, and the brilliant player collapses at once and for ever.

*Rule 4.*—In many places it is even still the custom to make a ball "out of play" until it has run its first hoop, or even in extreme cases to allow a player any number of "tries" until this fearful initial difficulty has been surmounted. This absurd concession to feeble players is now happily a thing of the past upon all lawns of any pretensions.

*Rule 11.*—The requirement in this rule that *both* balls must be moved in taking croquet, is difficult of application where there is no umpire, and an umpire is, of course, an unattainable luxury in all ordinary games; we have always, therefore, under such circumstances, advocated its abrogation. Even in matches we do not see that anything is gained by the rule: it can make but little difference to the game whether the second ball is made to move half an inch or not. It would be far more satisfactory to allow the striker the option of making it move or not at her discretion, so long as, at the moment of striking, actual contact exists between the two balls. This latter point is of importance, as definitely fixing the locality of the striker's ball.

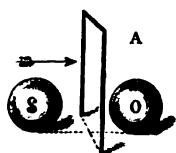
If the rule be kept in force where there is no umpire, it must always prove a fertile source of dispute and misunderstanding, and is a terrible weapon in the hands of an unscrupulous player, or even in the hands of that far larger class of players, such as one finds in every kind of game, and, indeed, in every department of affairs, who are absolutely incapable of seeing things that militate against themselves, while they are microscopically and imaginatively acute in desecrating the errors of their opponents. It is most essential in all games to cultivate simplicity of laws, and to avoid as far as possible all refinements of definition. Better lose some slight advantage in the game than open the door to possible sharp practice.

The fact is, this rule is a relic of præ-scientific days: it exists because it exists. Had there been no such rule when the rules were revised and codified, no modern practical player would have thought of inventing such a rule, and it evidently owes its retention still in the new code to the conservatism of some one or more of the revisers. We hope the next revision will make short work of it.

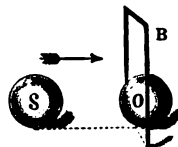
**Rule 12.**—On many grounds a “rover” is considered “out” if she touch the peg after roquet, and while her ball, therefore, is in hand; but this is manifestly unfair, and this rule distinctly sets the matter at rest.

**Rule 14.**—This is an admirable escape from what has often proved to be a difficult position.

**Rule 15.**—This rule may require a little explanation, but with a diagram it is quite simple.



In case (A), the striker's ball is supposed to strike another ball *beyond* the hoop, but so placed as to obstruct the full passage of her own, and then to pass satisfactorily through, as in diagram. It will be evident that if *o* be exactly opposite the centre of the hoop, and *s* be driven in the direction *s o*, contact must be made with *o* before itself has passed the hoop. If *s* can contrive so to displace *o* as to secure room for its own free passage, it scores both the hoop and the roquet; if not, it scores the roquet only. If the balls be as in diagram (B), with *o* projecting ever so little on this side of the hoop, then the roquet only can be counted, even though the balls be driven through.



**Rules 16 & 17.**—These rules about pegging out have been by authority provisionally placed in abeyance. For ourselves, we think it would add much to the game if all pegging out by *opponents* were abolished. The whole subject is beset by many difficulties, and hardly any conclusion can be arrived at which will not be open to objection on some count or other. But on this particular point we feel we have a very strong case.

**Rule 18.**—This rule supposes the existence of what is technically called the “dead boundary”—a comparative innovation in the game, but most useful. Before this regulation was introduced a player was subject, upon lawns of any extent, to be condemned to a series of hard wild drives up from long distances, simply to get his ball back into the game, without the slightest possibility of “placing” it. A powerful arm and some luck in getting hold of the balls at critical moments was, under these circumstances, an overmatch for the most finished skill, less fortunate in these particulars. We have seen a good player utterly overwhelmed in this way by a muscular and triumphant opponent, whose crashing blows, like what are called “gallery strokes” in cricket, judged only by their results, were hailed with joy by his friends, and looked upon with respectful awe by his enemies. As well might one require a player at billiards, whose ball has been knocked off the table, to play it back somehow or other with his cue, as require a



croquet player to play back a ball that has been knocked to an indefinite distance off the ground.

*Rule 25.*—The reason for insisting upon the replacement of the balls in case of a foul stroke is not at once apparent. The object is to prevent a player deliberately making a foul stroke when, as does sometimes happen, she finds she can in that way do either more good to her own side, or, what comes to the same thing, more harm to her adversaries. It seems strange to have to legislate in this manner for a mere game; but, unfortunately, there are people, the very souls of honour in other things, who, even when nothing but the barren glory of victory is at-stake, will avail themselves of every little flaw in the laws, and stoop to unheard-of meannesses, to bring themselves or their friends but one step nearer the winning-post—and this without a blush, or even the sense of shame. The writer played once in a very well matched set, where the winning game of the rubber was pulled off in this way: It was a four-handed game; his side won the first game, and were well on in the second. At a critical moment he was about to “peg out” the opposition rover, as was always the custom in those days when opportunity occurred. The hostess, whose ball was thus in peril, protested against it as a mean advantage; and finally, after a little discussion, the stroke was abandoned, although the whole play had been laid out for this for some turns back. By good play and some luck the opponents ran out. The next, and winning game, the writer having made his ball a rover, and his friend being well up, placed it with sublime confidence near the peg. His astonishment was great to see the hostess roquet his ball, and then placidly—despite all remonstrances from friend as well as foe—proceed to peg it out! She remarked that rules were rules, and that no *agreement* had been made to abolish “pegging out”! The writer said nothing, but thought a great deal. He hopes her conscience pinches her now and again for this lapse into meanness, but is forced to confess that in all probability to this day, if she have not forgotten it, she imagines herself to have been perfectly in the right, and is rather proud than otherwise of her cleverness. This anecdote of personal experience is a good example of the difficulties and unpleasantness that may arise from any uncertainty in the rules.

The various definitions of foul strokes are sufficiently plain, and their object sufficiently evident, not to need any detailed observations. We have already noticed above the rules as to croqueting a ball. The rest of the rules require no special notice.

#### OBSERVATIONS ON RECOMMENDATIONS, &c.

*The Ground.*—The size of ground recommended by the committee is that which has been found most suited to the game; but this is not an imperative necessity, and must depend upon the exigencies of each case. Croquet, and good croquet too, can be played on a much smaller lawn, just as very satisfactory billiards can be played on a table of less than full size.

We should not, however, recommend the adoption of much larger dimensions, however extensive the facilities may be.

The first and most important requisite of the game is a firm, close, and level turf. On a good lawn very fair practice may be made even with a decidedly inferior set of implements; but on a thoroughly bad one, however good the other accessories, the game, as a game of skill, is simply impossible.

We do not mean to say that a lawn should be immaculate—absolutely perfect in every requirement. Much skill may be shown in taking advantage of the various inequalities and peculiarities of the ground; but we do say—the better the lawn, the more scientific the play. Moreover, on an uneven lawn, those who are accustomed to the ground have an unfair advantage over those who play on it for the first time or only occasionally.

There are numberless refinements of play which require the accurate placing of one or both balls almost to an inch, which are simply impossible upon any but a true sheet of turf.

When there are any considerable inequalities in the turf, a slow stroke is hardly to be attempted: just at the critical moment the ball may come upon one of these lumps or other irregularities, and wander off indefinitely—probably coming finally to rest precisely in the very spot where the striker least wishes it to be. And as it is the gentle, and not the slashing strokes, the careful “timing” of the ball, and not mere hard hitting, that tests the skill of the player, it is exceedingly annoying to any one who really cares about the game to find her skill thus neutralized, and more than neutralized, and herself driven to adopt a style of play which she detests. A gradual slope does not so much matter,—that can be calculated on and provided for: it is the small abrupt irregularities that prove the ruin of all accurate play; but fortunately this is the fault that is most easily remedied.

*Arrangement of the Ground.*—This is not a matter of such vital importance to the game as might at first sight be supposed, almost all the ordinary systems affording a very good opening for an interesting contest.

Nevertheless, the arrangement of the hoops undoubtedly does make a material difference to the lasting interest of the game, and many a closely contested war of words has raged over this question.

The settings we have given are considered to afford more “sport” than any others; but there is ample room for the display of any amount of ingenuity in working out and experimenting upon new settings.

On first-class lawns, of course, any possible arrangement is just as practicable as another, and were these the only places to be legislated for, uniformity of practice would be much to be desired; but it is one of the great recommendations of croquet that it can be played almost anywhere. Granted a piece of tolerably smooth turf, if it be only a few yards square, and croquet is at once a possibility.

Where any one setting has been adopted, it is a great saving of time and labour to prepare a piece of string or tape with knots or other marks upon it for the various hoops. This stretched from peg to peg will give all the hoops in that line, and other pieces fastened on at right angles will give the

position of the side hoops with mathematical nicety. If the string or tape (the latter is preferable) be tolerably stout, and reasonable care be taken in winding and unwinding it, there need be no fear of its becoming entangled.

*Boundaries.*—If possible there should be a raised bank, 8 inches or so in height, all round the lawn: this is the most satisfactory boundary. The next best thing is a line of wire netting of about the same height; but this is very apt to upset short-sighted or inattentive people, or catch in ladies' dresses. A very simple method of marking is to peg close to the ground a whitened cord or piece of stout string. This makes a perfect landmark, and is not liable to the same objections as the wire netting. Its only drawback is that it is of no use in arresting the course of the ball, otherwise it serves its purpose admirably.

*Hoops.*—The thickness of iron employed for the hoops may seem a very unimportant matter of detail, but practically it becomes one of no slight consequence. The thickness given, half-inch iron, should be the minimum. If the thickness of the wire is appreciably less than this, the hoops are apt to get twisted and bent, and are more difficult to drive satisfactorily into a hard ground, and are thus always falling away from the needful rigid perpendicular; they are, moreover, less easily distinguishable.

The flat-topped hoops are now becoming almost universal.

*The Balls.*—The recommendation given as to weight should be very carefully attended to; it is a matter of very serious importance. Light balls are much more erratic and are much more sensible to slight inequalities of ground than are heavy ones. Here, again, it is only a minimum that is given.

Where real play is intended, it is as well to keep always a perfect set of balls, unbruised and unchipped, for serious games, and a second set of partly-used balls for rougher work or for wet weather.

The wet is very injurious to the balls, and a good set should be exposed to it as little as possible. They should be kept constantly in a dry but not too hot place, and a slight application of a greasy cloth every now and then before they are put away (of course, after they have been thoroughly dried, which should be done by vigorous rubbing with a piece of house flannel) will prove a great preservative.

All promiscuous knocking and banging about of the balls—a very common weakness amongst young people—should be sternly discouraged. A ball seldom gets chipped or bruised in actual play, unless perhaps by a very unskilful player. The player should be required to carry the balls carefully from place to place, especially when they are being taken to or from the lawn.

*FOUR-BALL GAME.*—This is the *only* game worth playing, and it should be played if possible by only *two* players. Thus each is responsible entirely for the success or ill success of her own side; there is no jealousy about helping or declining to help one's partner, and there can be no disputing as to the proper direction of the game. Each player is his or her own captain and side in one. She can conceive and follow out a line of play simply on the ground of its merits, and without being weighted by the necessity for considering the weaknesses or idiosyncrasies of her partner.

There is the same difference between the two-handed game at croquet and the four-handed, as there is at billiards. No billiard player thinks of joining in a four-handed game if he can possibly get a two-handed.

The six-handed game, even with a picked set of players, is sure to become more or less tedious and a weariness to the flesh; while the eight-handed game is simply an abomination.



**THEORY OF THE GAME.**—We have hitherto taken for granted a certain amount of previous knowledge of the game on the part of our readers; but perhaps a short notice of its theory may be not absolutely misplaced.

The game is played by opposite parties, of two or more on a side, each player armed with a mallet, having her own ball, which it is her business to drive with her mallet through the several hoops in order, striking the turning-peg on the way, and so home to the starting-peg, contact with which puts her ball out.

The side that gets all its balls out first wins.

This is the mere outline of the game, the **framework**, as it were, on which the game is constructed: in point of fact, making the hoops comes to be a matter of very inferior interest in a close game. It is only when both sides have made all their hoops, and are fighting for the winning-peg, to get out, that all the capacities of the game are revealed.

In a case like this, with good and well-matched players, the interest becomes absorbing; the game sways backwards and forwards—now one party has it all its own way, now the other; and it is only when the last ball of a side has actually struck the peg, that victory can be confidently reckoned

upon by one party, or despaired of by the other. There is, perhaps, no other game played in which the maxim, that it is never lost till it is won, is more constantly exemplified as it is in croquet, or in which a player may with more advantage take for her motto, *Nil desperandum*.

**SCIENCE OF THE GAME.**—The science of the game may most conveniently be considered under two heads, Mechanical and Intellectual. Under the former will naturally fall all that pertains to manual dexterity; while the latter will include those higher qualities which are, as it were, the very salt of the game, and which are to the mere physical science what a general is to his army, or the brain to the body.

The former, as the very basis upon which the latter has to work, the material it has to manipulate, naturally comes under discussion first.

**MECHANICAL.**—We have already given above, in our observations on the rules, full instructions in the method of handling the mallet, and, as long as the striker has only her own ball to deal with, this is all that she requires: the ball *must* run in a straight line from the head of the mallet; and if the blow has been properly delivered, and there be no obstacle in the way, the path of the ball is a matter of the simplest calculation. A straight eye and a firm hand will place even the most uninitiated player on a par with the most practised performer, as far as hitting the ball goes.

**THE CROQUET.**—Having mastered the art of driving her own ball in a straight line in any requisite direction, so as to strike another ball or to pass through a hoop, and the more difficult art of “placing” it—that is, of so judging the strength of her stroke as to make the ball roll exactly as far, and no farther, than she desires—the player must study and master the art and practice of thus directing and placing two balls—that is, she must make herself a proficient in the “croquet.”



In the earlier days of croquet there was much to be said and learnt upon the right method and judicious employment of “tight croquet”—a feature in the game now happily abolished. The stroke was made as follows: The striker placed the two balls together as in “croquet” proper, put her foot upon her own ball, and then delivered the stroke. If this was done properly—and it was hardly possible for a player who had had any practice to fail, except from extreme carelessness—the object-ball was driven off at a velocity proportioned to the vigour of the stroke, and in a direction in accordance with the relative

positions of the two balls, as we have explained further on, while the striker’s ball remained firm under her foot. The illustrations retained to

this article will show the old manner of playing in this way, nine or ten years ago.

It has been found that all the advantages of this old "tight croquet" may be obtained by skill in the use of the mallet unaided by the foot; and therefore for this and other reasons, not necessary now to specify, its use has been abolished.

To drive your own ball where you will in a straight line is a matter of comparative facility, and some skill in "judging strength" is not difficult of attainment, nor by any means uncommon; to treat in like manner the object-ball, while your own is held firm with your foot, is not only not more difficult, but positively much more easy, and far less liable to failure; but to be able to place *both* balls at will exactly where most wanted—either following each other, or each going off at a different angle, and having to traverse a different distance—this, indeed, is a very triumph of skill and dexterity, and entitles a player to a place amongst the very first, so far as mere mechanical proficiency is concerned.

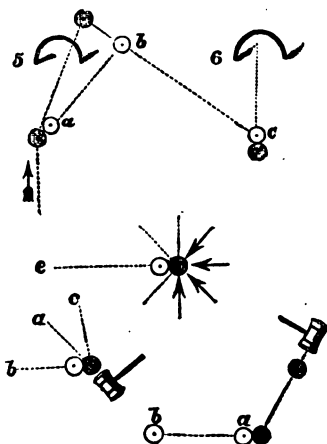
It is in the croquet that are to be found all the scientific possibilities of the game; and, therefore, the player who desires to excel cannot take too much trouble in making herself as far as possible mistress of this fascinating branch of its practice.

In order to do this with any success, she must possess or acquire a thorough knowledge, theoretical or practical, or both, of the natural laws which govern the motions of the balls when brought into contact with one another.

We need not go into any abstruse scientific details; they are not necessary for the due attainment of our object, which is to take a practical rather than theoretical view of the subject: a reference to one simple rule of mechanics will answer every purpose.

If one ball be driven by another ball coming in contact with it, the former will fly off from the latter in the direction of the straight line joining their centres. This rule holds good also when the two balls are in contact at rest, and one is struck as in "the croquet."

Attention to this rule will make the *direction* of the croqueted ball a matter of mathematical certainty. Get this line correctly, and it matters not how you strike your own ball: the croqueted ball *must* take the right direction. The central figure in the illustration illustrates this rule: in whatever direction the mallet — represented



by the arrows — falls on the dark or croqueting ball, the light or croqueted ball *must* inevitably fly off in the direction of *c*.

There is not much difficulty in placing either the croqueted or the croqueting ball singly; but when both have to be "placed," or still more when both have to be taken through a series of hoops together, then the player will indeed be required to put forth her utmost skill—to do all she knows.

The movements of the croqueting ball depend entirely upon the handling of the mallet. For instance, in the left-hand bottom figure, if it be required to place the croqueting ball at *a*, a very different stroke is required to that which would place it at *c*. The object-ball, of course, will in either case fly off to *b*. A simple formula will, perhaps, prove more serviceable here than pages of instruction. Bear this, therefore, in mind: "SHORT SHARP STROKES PRODUCE GREAT ANGLES; LONG SWEEPING STROKES, FINE ANGLES." The former drive the croqueted ball, and hardly stir the other; the latter drive the croqueting ball, and, unless the angle be fine, scarcely move the croqueted.

In making the sweeping or driving stroke, the mallet must be grasped with rigid hand and wrist as firmly as possible, and quite low down, and must be made to follow well after the ball. Great firmness and decision are required to make this very useful stroke effectively.

The short sharp strokes must be delivered with a loose wrist, the mallet not being held too tight, but rather allowed to play in the hand. Care must be taken, too, to arrest the mallet's motion at the very instant of delivery: if it be allowed to follow the ball in the least, it will not only modify the angle, but will impart to the ball more or less of its own forward impetus. To avoid this, the mallet should be brought up sharp with a kind of jerk—a knack not very difficult of acquirement. A thorough command of this method of making the croquet is exceedingly valuable, and, indeed, to a first-rate player, is simply indispensable: in every game she is sure to find abundant opportunity of making it serviceable.

It is exceedingly difficult to make these short sharp strokes with any certainty with the heavy mallets, and it requires an exertion of muscular power not possible to everybody.

It is better, especially for ladies, when this stroke occurs in the game, to lay aside the large mallet, and to make use of the small one. This being actually lighter than the balls, will have a tendency of itself to fly back when the stroke is delivered, and will therefore require little of that sudden jerk back which is so trying to the wrist, and what it does require is rendered comparatively a matter of unimportance by its immeasurably inferior momentum.

With the small mallet a skilful player can drive the croqueted ball to the very extremity of the ground, and yet not move her own ball from the spot. This can, of course, only be done where there is no attempt at a splitting stroke; but even in this latter case it is perfectly wonderful what may be done with the two balls: the croqueted ball may be sent far away in one direction, and the striker's ball be made to roll, screwing along in a slow aggravating manner, up to another ball or towards a hoop, only a foot or so off.

Thus it may be seen that a thorough command of the small mallet is quite as important an element in the game, though more rarely called into play, as that of the large one.

**SCIENCE INTELLECTUAL.**—It would be impossible, in the short space of a few pages, to enter into a very elaborate disquisition on the practical working of the game, or go into and describe all the moves upon the balls. A few general hints and illustrations will be all we can attempt.

**Hints to young Players.**—At the beginning of the game, and before making each stroke, look well around you and see what is the exact position of affairs; then, having made up your mind what to do, make your stroke deliberately and carefully.

Above all things avoid hurry, especially when in the midst of a good break. Nothing is so likely to bring your break to an untimely end.

Watch the game carefully throughout, studying especially each player's style, both friend and foe. You will thus not only measure the capability of the other players—a knowledge sometimes of the utmost importance at critical moments in the game—but you will be very likely to pick up a hint or two which may hereafter prove most serviceable.

You must remember that it is a matter of the utmost importance to your game to know not only how far you may dare to trifle with your enemies, but also how much it is safe to leave to your friend. A correct judgment upon this head at a critical point in the game will often win a match otherwise irretrievably lost.

Do not play a selfish game; that is, do not be in too great a hurry to make your own hoops. You may often do more service to your side by going back, or lying by to help your friend, than by running your own ball through half a dozen hoops. Remember, you cannot win the game off your own ball.

Do not hesitate either, where you can do real injury to your opponents, to abandon your own game, in order to go down and break up theirs.

Look with an especially jealous eye upon any assembly of their balls in friendly contiguity: rush down, at all hazards, and break it up. Such a gathering always portends mischief.

Never try a difficult stroke, however brilliant, when circumstances do not imperatively demand it. It is the safe game that wins. For instance, in trying for a hoop from a difficult point, unless you are pretty certain of making it, it is better to place your ball and wait for your next turn, than run the risk of overrunning your hoop, and so having to come back. Better the certainty of making the hoop in two turns, than the chance of having to take three. Of course this is on the supposition that none of the enemy's balls are lurking about near.

Lastly, take every opportunity of practising the various strokes, especially the more simple ones. If the brilliant strokes make the beauty of the game, it is the ordinary every-day strokes that do the work. Just as at billiards, it is not the man who makes the brilliant strokes that necessarily wins the game, but he who can go on time after time making the simple straightforward strokes with unfailing machine-like regularity. Of course the command of the exceptional strokes is of enormous advantage to a player,



as it will constantly enable her to extricate herself from a difficulty, and get the balls together when they are apparently hopelessly apart, and scoring seems an impossibility.

The theory of croquet is just the same, and there is certainly in croquet, just the same as in billiards, something peculiarly aggravating to the opponents in the sight of a player calmly making her points in unfailing succession, laying her ball after each stroke within an inch or so of where it is wanted, and so steadily progressing in her game without apparently making or having to attempt a single stroke that is above the ordinary humdrum average.

But herein lies the skill of the player: she has no difficult strokes to play, because she takes care to avoid having them; she so places the balls after each stroke that the succeeding one shall be as much a certainty as the one she is just playing. The uninitiated opponents, or onlookers, make great outcry about *luck*, the older hands admire the *play*.

Therefore to the young player we say, Study to play a steady-going careful game, never getting excited, never throwing away a chance, and with but one end in view—the final post.

For this purpose there is nothing like taking a couple of balls by yourself, placing them in any position you will, say one just “placed” for a hoop, and the other on the other side, in any position you may consider the most advantageous, and then trying how many points you can make in a single “break.” This is splendid practice, and if persevered in will quickly produce the most satisfactory results upon the accuracy and value of your play. Half an hour two or three times a week, if no more can be spared, will be found amply sufficient for the purpose.

Nor need the young player think that this will be a dull amusement. As soon as she gets into the spirit of the thing, so far from finding it dull, she will find it so fascinating that she will find it difficult to leave off; she will be always wanting to have one more try at the task she has set herself, or, having achieved it, will be wanting to do a little better still.

A very short experience of this practice will convince the player of the truth of our observations. The opportunity for a fine *tour de force* only occurs now and again, but the ordinary routine strokes are in requisition at every turn.

It must be well understood we do not wish to seem to undervalue in any way the higher flights of skill; we only wish to impress upon our young readers the necessity of laying first a solid foundation of steady accurate play in the easier strokes before attempting to excel in the more difficult ones.

More breaks are lost by careless play in comparatively simple strokes than by failure in the more difficult ones. The player naturally takes more pains with the latter, and therefore is less liable to come short of her aim. **EVERY STROKE SHOULD BE PLAYED AS IF THE WHOLE GAME DEPENDED UPON IT.**

When the young player feels herself getting reasonably strong in this steady accurate playing of simple strokes, then she may try her wings a little and aspire to higher flights of skill and dexterity.

Especially let her study the art of making *long shots*: on a fairly good ground a wonderful degree of accuracy at very long distances may be acquired, and 20 yards' distance, and even more, may be made a matter of as much certainty as 4 or 5 yards to ordinary players.

Nothing gives a player so much confidence in herself, or is so fatally demoralizing to the opposition, as this certainty of aim at long distances. The player herself feels quite calm under all successes of her opponents: the end of all breaks must come sooner or later, and then it will be very hard if there be not a hoop or at least one ball out of three within her reach, and, therefore, a break of some kind within her power; while the opponents cannot but be nervously anxious about leaving an opening for her anywhere.

A dead shot at 20 yards must always be dangerous at 30 or even 40, and thus there can be no absolute safety anywhere upon the ground, except under the protection of a hoop or a stick; and it is far from easy to make a succession of points, leaving the balls after each stroke "wired," or otherwise protected from the opponent's ball.

Indeed, it could never be attempted: something must be risked, and where the stroke is easy, something ought to be risked, in order to make a point; but the consciousness that your opponent is lying in wait for you, and that failure in any detail means letting him in, perhaps to a fatally long break, does not add to the steadiness of a player's nerves, and a little unsteadiness or over-anxiousness often produces the very result that is dreaded.

There is one more point of play which we are loth to pass over, and for which, therefore, we must endeavour to find room. Sometimes it is desirable, in roqueting a ball, to drive it not in a straight line, but at some slight angle to one side or the other of it: this may be effected in the manner indicated in the right-hand bottom figure of the illustration on page 27.

This is a very neat stroke, very effective at times, and sure to "bring down the house." It is, however, rather hazardous, as the chances of missing are greatly enhanced, and only to be attempted from a comparatively short distance, and not then unless at very close quarters on a thoroughly good lawn.

As a final piece of advice, and one by no means unnecessary in many cases, **KEEP YOUR TEMPER.** It is difficult enough at times, one knows, especially when fate seems all against you and in favour of your opponents; when *their* good things all come off, but in the most fluky manner; when a badly-aimed ball glances from a hoop, and effects the roquet it would otherwise have missed; or the roquet is effected by the merest shave, and so on; while as for *your* balls, "Misfortune seems to mark them for its own," and nothing comes off, but everything fails as it were by the "skin of the teeth."

Nevertheless, to lose your temper is the worst thing you can do: it is sure, in the first place, to amuse your opponent and the spectators; it will certainly make you play worse than you otherwise would, and thus lose more points still in your game; and besides all this, it will make you very uncomfortable, and is also unladylike. For all that, we have no doubt that

when such circumstances do arise, all these forewarnings will prove of little avail against the provocation of the moment.

There is one more maxim which we wish to impress upon our readers: **KEEP YOUR OWN BALLS TOGETHER, AND YOUR ADVERSARY'S APART.** In this lies the secret of all successful management of a game. However hard it may seem at the time to give up a strong position with one ball, in order to go back and help its laggard brother, or to stop a combination of the enemy, it *must* be done, and done systematically too, at all hazards. One ball by itself is a very lame and impotent affair: two together become a host.

If at the end of a break you find nothing immediately to your hand for you to do, as must constantly happen as soon as your ball has made all or most of its hoops, and with but one turn left, lie up to your second ball, unless, of course, it be close to an enemy, when such play would be simply suicidal. You thus place your enemy in this position: Either she must go on with her game, and risk letting you in with your two balls together—a thing no player would think of, unless she had a series of absolutely certain strokes before her, which would make it worth her while to brave the after risk—or you compel her to leave her game, and come and separate your balls. In either case you retard her game, which is the same thing as advancing your own. We have seen many a game lost and won by attention or neglect of this simple rule.

### CROQUET POOL.

Nine hoops must be fixed in a horizontal line in the ground. The player uses eight balls one after the other, and stands at an agreed number of feet from the hoops. She aims for the centre hoop, but scores according to the hoop she actually gets through. The hoops are of the following value:



Should the player altogether miss the hoops, a deduction of three is made from her score. Should she hit the wire, but fail to go through, she scores the lower number of the two hoops the ball stops between.

Should she strike the outside wire of No. 1, and not go through, she counts nothing, but no deduction is made from her game, as there is when she misses altogether.

The player who makes the highest score wins.

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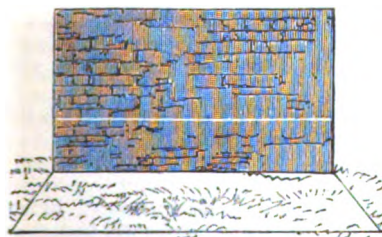
### FIVES.

There is a very old game at ball, called "Fives," which was known in the days of Queen Elizabeth, and declared by her to be "the best sport she had ever seen."



For this game a garden wall with a piece of smooth ground before it is necessary. A line is drawn with chalk on the wall at the distance of about a yard from the bottom. On the ground a long line is marked out, with two other lines at right angles with it reaching to the wall, forming an oblong square. This space marks the "bounds."

The players stand in a row outside the boundary line, a player on each side standing alternately; for, of course, as it is a trial of skill, the players divide as at croquet.



The first begins the game by bouncing the ball on the ground in the Chinese manner of playing ball. On its rebounding, she strikes it with the palm of her hand against the wall in such a manner that at its descent it shall fall outside "bounds."

This is done only for the *first stroke*: after it, the ball must be struck so as to fall *within bounds*, otherwise the opposite party count "one."

The players strike the ball in turn—first one side, then the other.

If any player misses the ball at the rebound, or strikes it beneath the line on the wall, or hits it out of "bounds," the opposite side count "one."

"Fifteen" is the game, and the side which first counts it wins.

## PRISONER'S BASE.

Prisoner's Base used to be considered a game for boys only; but the harder education of the young ladies of the present day has caused it to become a game for both brothers and sisters. The exercise and animation of this pastime will render it delightful on a cold winter afternoon.

It is played thus: A long straight line is marked out on the ground parallel with a wall, hedge, laurel fence, &c., but at about two or three yards distance from it; and this space is divided into two equal portions. These are called bases. One belongs to the first of the two parties or sides into which the players are divided, the other to their antagonists. At some tolerable distance from the bases, two prisons are marked out parallel with each other, with a good space between them; each prison must be opposite to its own party's base.

The players should consist of an even number, and should have two leaders or chiefs, under whom they must be equally divided.

They range themselves in a long row, just behind the front line of their respective bases, and the game begins by one player (called "the Stag") running from her own base in the direction of the prisons. When she has run a few paces she shouts "Chevy!" at which signal one from the opposite party rushes out and tries to touch her.

Instantly another player from the stag's party darts off to intercept the pursuer, whom she endeavours to touch before she can reach the one who began the game, and who, of course, makes for her own base again.

Player after player follows, each trying to "touch" an enemy or to avoid being touched by one.

Those who are touched on either side have to go to prison.

The leaders on both sides endeavour to rescue the prisoners from their adversaries, which they may do if they can reach the prison, and *touch* their captive followers, without being touched by the enemy themselves; but it is very difficult to achieve this, as a good look-out is kept over the prisons.

The game is ended when *all* the players on one side are in prison, with the leader, who alone can rescue them.

If the prisoners on both sides are all released, it is a drawn game, and they must begin again.

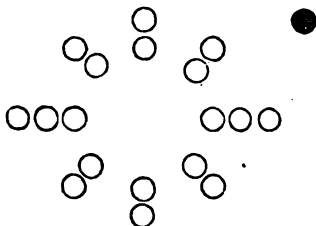
## TIERCE.

Tierce is a capital out-of-doors game, fit for the coldest weather. In fact it is on a sharp December or January day that young players will best enjoy a game which affords equal exercise and amusement.

The young people must stand in the form shown in the illustration, in twos and threes. One stands outside the circle, and is on no account to be allowed to enter it.

The object of this outside player is to touch *one of three* wherever three are together. But when she attempts to touch the outside one of the three, *that* player darts into the circle, and stands inside *two* of the others, who

thus become three deep. The outside one of these three instantly becomes the object of pursuit, but she also slips away (if she can) behind another



pair. Thus the pursuer is led all round the circle, which she cannot enter, always trying to touch an *outside one of three*. The moment the *three* become two, the pursuer has nothing more to do with them.

Any one of *three* who is touched instantly changes place with the pursuer, and becomes pursuer in her turn.

### LES GRACES.

This game derives its title from the graceful attitudes into which it throws the body if properly played. Unfortunately, when badly played, it is about as ungraceful a proceeding as can be imagined.

The materials of the game are very simple, namely, a couple of slender sticks for each player, and two or more hoops of different sizes. The players stand at some distance from each other, and the object of the game is to throw the hoops backwards and forwards, catching and throwing them by means of the sticks.

The proper mode of throwing the hoop is as follows: hang it on the sticks, and then cross them, so as to prevent it from falling off. Hold the sticks, with their points downwards, on the left side of the body, the left hand grasping one stick firmly, while the right hand holds the other loosely between the finger and thumb. Now raise the arms, point the left-hand stick in the direction which the hoop is meant to take, and with the right-hand stick throw the hoop, gliding, at the same time, the right-hand stick over the other.

These movements should be performed as one, without any pause between them; and if they are properly done, the hoop revolves rapidly, so as to keep it steady as it flies through the air. Unless this be done, it wobbles, or even turns over and over, in either of which cases the player to whom it is thrown can scarcely have a chance of catching it.

The hoop should be thrown tolerably high, and ought to be sent with such accuracy, that if it were not stopped, it would fall on the head of the second player.

Catching the hoop ought to be done with both sticks slightly crossed, un-

less it be flung much to the right or left, when, of course, a single stick must be employed. Sometimes an unskilful player flings the hoop so that it presents its edge to the catcher. Even in this case an expert player will catch it by giving the lower edge a little tap with one stick, the effect of which will be to make the hoop fall over the stick.

Let me here warn the beginner against one mode of throwing the hoop, than which nothing can be more awkward. We have often seen players cross the sticks horizontally in front of their noses, stick out their elbows level with their ears, and throw the hoop by flinging both arms apart. Now, in this mode of throwing there is neither ease, grace, nor certainty. A properly thrown hoop ought to look quite steady as it passes through the air, and to be thrown so accurately that there is no difficulty in catching it.

With every good set of *Les Graces* implements there ought to be two hoops of a foot in diameter, and two of seven inches. The test of good play is to exchange the hoops, throwing them so that the small hoop passes through the large one. This feat looks rather formidable, but all good players can perform it. When the hoops are thus crossed, the larger hoop should be thrown first, so that aim may be taken with the smaller one.

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## SWIMMING.

We need scarcely say that every one ought to know how to swim. There is not a man, woman, or child in the kingdom that cannot learn, and ought not to learn, how to swim. There is no absolute necessity for learning the various aquatic tricks which are performed by masters and mistresses of the art; but there is a necessity that all should know how to support themselves in the water.

There is, perhaps, no athletic exercise which is so easily learnt, which is so well adapted to both sexes of all ages, and yet is so little known. There is really no art whatever in ordinary swimming—that is to say, in the ability to keep the head above the water, and to propel the body in any given direction. Art certainly confers greater grace, gives more endurance, and insures greater speed; but in the mere support of the body, nothing is needed except confidence, and very little even of that quality.

As to the value of swimming, it is simply incalculable. How many most precious lives might have been saved had the deceased persons only known the least rudiments of swimming! How many families have been thrown suddenly into grief and distress because the father and bread-winner happened to fall into a canal or a pond that a swimmer could cross at a single stroke! How many parents annually lament the loss of some beloved child, who has been accidentally drowned by falling into a river, or by stepping into a hole in the stream in which he is bathing! While we have had several recent instances of ladies saving the lives of boys and children, by swimming to their aid.



Of course instructions in swimming apply equally to both sexes, and I have generally found that girls learn to swim much faster than boys.

The first care of the intending swimmer is, of course, to find a proper piece of water in which to learn the first lessons. The very best water that can be found is that of the sea, on account of its saltness and bitterness, whereby two great advantages are obtained.

The first advantage is, that, on account of the salt and other substances which are dissolved in it, the sea-water is so much heavier than fresh that it gives more support to the body, and enables the beginner to float much sooner than she can expect to do in fresh water.

The other advantage is, that the taste of the sea-water is so nauseous that the learner takes very good care to keep the lips tightly shut, and so does not commit the common error of opening the mouth, which is fatal to all swimming, and is sure to dishearten a beginner by letting water get down the throat and half choke her.

As to place, there is nothing better than a sloping sandy shore, where the tide is not very strong.

The next best place for learning to swim is a river with a fine sandy bed, clear water, and no weeds. Since that extraordinary river-weed, the *anacharis*, has swept throughout our canals and rivers, it is extremely difficult to find a stream that is free from weeds. However, it will be easy enough to clear a sufficient space in which a learner can take her first lessons.

When such a spot has been found, the next care is to examine the bed of the river, and to remove very carefully everything that might hurt the feet. If bushes should grow on the banks, look out carefully for broken scraps of boughs, which fall into the stream, become saturated with water, sink to the bottom, and become fixed with one of the points upwards.

If human habitations should be near, beware of broken glass and crockery, fragments of which are generally flung into the river, and will inflict most dangerous wounds if trodden on. If the bed of the stream should be in the



least muddy, look out for mussels, which lie embedded almost to their sharp edges, that project upwards and cut the feet nearly as badly as broken glass.

Failing sea and river, a pond or canal is the only resource, and furnishes the very worst kind of water. The bed of most ponds is studded with all kinds of cutting and piercing objects, which are thrown in by careless boys, and remain where they fell. Then, the bottom is almost invariably muddy, and the water is seldom clean. Still, bad as is a pond, it is better than nothing, and the intending swimmer may console herself with the reflection that she is doing her duty, and with the prospect of swimming in the sea some time or other.

Of course the large public baths possess some of the drawbacks of ponds; but they have, at all events, the advantage of a regulated depth, a firm bank, and no mud.

As the very essence of swimming lies in confidence, it is always better for the learner to feel secure that she can leave the water whenever she likes. Therefore, let her have a light rope of tolerable length, tied one end to some firm object on the bank, and let the rest of the rope lie in the water. "Manilla" is the best kind of rope for this purpose, because it is so light that it floats on the surface instead of sinking, as is the case with an ordinary hempen rope.

If there is only sand on the shore, the rope can be moored quite firmly by tying it to the middle of a stout stick, burying the stick a foot or so in the sand, and filling up the trench. You may pull it till you break the rope, but you will never pull the stick out of its place. If you are *very* nervous, have two sticks tied in the shape of a cross, and have them buried in like manner.

The rope need not be a large one, as it will not have to sustain the whole weight of your body, and it will be found that a cord as thick as an ordinary washing-line will answer every purpose.

On the side of a stream or pond have the rope tied to a tree, or to a stake in the ground. A stake eighteen inches in length, and as thick as an ordinary broomstick, is quite large enough. Have it hammered rather more than two-thirds into the ground, and let it lean boldly away from the water's edge. The best way of fixing the rope to it is by the "clove hitch."

Now, having your rope in your hand, go quietly into the water *backwards*, keeping your face towards the bank. As soon as you are fairly in the water, duck completely beneath the surface. Be sure that you really do go fairly under water, for there is nothing more deceptive than the feel of the water to a novice. She dips her head, as she fancies, at least a foot beneath the surface; she feels the water in her nose, she hears it in her ears, and thinks she is almost at the bottom, when, in reality, the back of her head is quite dry.

The best way of "ducking" easily is to put the left hand on the back of the head, hold to the rope with the right hand, and then duck until the left hand is well under water.

The learner should next accustom herself to the new element by moving about as much as possible, walking as far as the rope will allow her, and jumping up and down so as to learn by experience the buoyancy of the water.

Perhaps the first day may be occupied by this preliminary process, and on the second visit the real business may begin.

In swimming, as in most other pursuits, a good beginning is invaluable. Let the learner bestow a little care on the preliminaries, and she will have no bad habits to unteach herself afterwards. It is quite as easy to learn a good style at first as a bad style, although the novice may just at the beginning fancy that she could do better by following her own devices.

The first great object is to feel a perfect confidence in the sustaining power of the water, and, according to our ideas, the best method of doing so is by learning to float on the back.

We will give a separate paragraph to this important point.

### FLOATING ON THE BACK.

Take care that the cord is within easy reach, so that it may be grasped in a moment, should the novice become nervous, as she is rather apt to do just at first. Take it in both hands, and lay yourself very gently in the water, arching the spine backwards as much as possible, and keeping the legs and knees perfectly straight and stiff.

Now press the head as far back as possibly can be done, and try to force the back of the head between the shoulder-blades. You can practise this attitude at home, by lying on two chairs.

When you have thus lain in the water you will find that you are almost entirely upheld by its sustaining power, and that only a very little weight is sustained by the rope. On reflection you will also discern that the only weight which pulls on the rope is that of your hands and arms, which are out of water, and which, therefore, act as dead weight.

Indeed, you might just as well lay several iron weights of a pound each upon your body, for the hands and arms are much heavier than we generally fancy. Just break an arm or a leg, and you will find out what heavy articles they are.

Now let your arms sink gradually into the water, and you will see that exactly in proportion as they sink, so much weight is taken off the rope; and if you have only courage to put them entirely under water, and to loose the rope, your body will be supported by the water alone.

These are facts, but we may as well have reasons.

Bulk for bulk, a human being weighs considerably less than water, *i.e.*, at the temperature of ordinary sea or river-water. Now, as the lighter substance will float in the denser, it follows that the human body will float in water. If a dead body be flung into the water, some part of it will float above the surface until the lungs get choked up with water, and so the whole body is much heavier than it ought to be.

Now, supposing that a living person in a fainting condition, and therefore unable to struggle, were to fall into the water, some part of the body would remain above the surface. But as the head, which is one solid mass of brain, muscle, and bone, is much heavier than water, it follows that the head would hang down in the water, and the shoulder-blades would appear above the

surface, being buoyed up by the air-filled lungs. The hands and arms, of course, follow their natural inclination, and fall forward, thus turning the body on its face.

This, then, is the natural position of a living human being in the water, provided that he does not attempt to struggle or alter his position. And the knowledge of this fact is the key to all swimming on scientific principles.

A considerable part of the body remains above the water, but it is the wrong part, as far as the preservation of life is concerned. We want to breathe, and it is very clear that we cannot breathe through our shoulders. Therefore the first point in swimming is to reverse the natural order of things, and to bring the nostrils above the surface of the water.

The mouth may be set aside altogether, because there is no necessity for that aperture in swimming. It is meant for eating and for talking, but was never intended for breathing, which is the only function that a swimmer regards.

Swimming, therefore, resolves itself into the ability to keep the nostrils above water; and the difficulty lies in the fact that the nostrils are set in the heaviest part of the whole body, and that which is absolutely certain to sink below the surface unless continual efforts are made to keep it in its right position.

It is evident that the simplest method of attaining this object is to reverse the entire position of the body. Let, therefore, the learner be on her back, let her arch the spine in directly the opposite direction, and bend the head backwards instead of letting it hang forwards.

The result of this change of posture will be at once apparent. The heaviest part of the body, the back of the head, will be partly supported by the water, and partly by the air which fills the lungs. The nostrils will then become the lightest part of the body, and will, of course, be above the surface when the remainder is submerged.

Practically, the bather will find this result. If she will assume the attitude which has been described, and will be content to keep her lips tightly shut and her limbs perfectly still, she will find that when she takes an inspiration the face will rise almost entirely out of the water. At each expiration the face will sink as far as the eyebrows and lower lip, *but no farther*, the nostrils being always left free for the passage of air to the lungs.

Any one who will give this plan a fair trial will gain more real knowledge of swimming in an hour than can be obtained in a year by mere practical teaching. So powerful, indeed, is the buoyancy of the water, that if any one, whether she can swim or not, will only lie in the attitude that has been described and will not stir hand or foot, *she cannot sink if she tries*. A cork will sink as soon as she.

So impressed are we with the extreme value of floating on the back, that we recommend our readers to practise that, and that alone, until they feel perfectly confident that, when they lie in the proper attitude, the water cannot fail to support them.

If the bather wishes to lie quite horizontally on the surface of the water, she can do so by stretching her arms as far as possible over her head. Their

weight will counterbalance that of the legs, and will cause the toes to appear at the very surface. This position is sometimes called the Balance.

The directions which we have given are intended for those who are obliged to bathe in fresh water. Those who are fortunate enough to bathe in the sea will find the lesson much easier. The water supports the body so much more perfectly that even during an expiration the face seldom sinks lower than the chin, while a fair inspiration raises the whole face out of the water.

### SWIMMING ON THE BACK.

The next division of our subject will be swimming on the back.

The power of floating on the back is invaluable to the beginner, but she soon begins to acquire something more. It is very well to be able to float like a cork, but a swimmer wants to direct her course as well as to float like an inanimate object.

When the learner has learnt to lie on her back without moving hands or feet, let her gently paddle with her hands, keeping the fingers together firmly, and scooping the water, as it were, towards her feet.

She must be careful to keep the hands below the surface, and the head well back. Most persons, when beginning this movement, are tempted to raise the head, so as to see whether they are moving, or, if so, in which direction. Consequently, the water no longer supports the head, its weight is thrown on the body, and down goes the swimmer.

When the learner can propel herself at a moderate pace head first, she should turn her hands round and scoop the water towards her head, thus propelling herself with her feet first. It will be found that the course can easily be directed merely by using one hand rather more forcibly than the other.

Having learnt this simple paddling process, the young swimmer now begins to use her legs.

It is possible to paddle for a considerable distance by using the hands alone, and there are sometimes circumstances when this process is invaluable. If, for example, the swimmer should be seized with the cramp in her legs, she is certain to be drowned if she does not have recourse to this expedient. Of the cramp and other dangers we shall write presently.

Still, although the swimmer *can* propel herself, it is a very slow process, and she naturally would wish to get on at a faster rate. This is done by striking out the legs, with the feet wide apart, and then bringing them together again.

These directions are simple enough; but something more must be mentioned. People generally fancy that the progress of the swimmer is only caused by the pressure of the soles of the feet against the water, and the usual opinion is that the fastest swimmer is she who has the broadest and the flattest feet. Of course, the pressure of the feet has something to do with it, but the chief part of the work is done, not by the feet, but by the legs.

When the legs are spread, they enclose between them a mass of water of

a wedge-like shape, and, as they are drawn together, the body is propelled forwards on exactly the same principle that a vessel is propelled by a screw. In fact, the principle of the inclined plane comes into operation, and the swimmer urges her way onwards just as the sails of a windmill are driven round by the air, or the fan of a smoke-jack is turned by the ascending currents of the chimney, and as a fish shoots through the water by the vibration of its tail.

Any one who wishes to see in action the real principle of swimming, cannot do better than go to the Zoological Gardens, and look at the seals as they glide so swiftly and gracefully through the water. There is no direct action at all, no scooping of the water with the fore-paws, which are kept closely pressed against their sides. But the two hinder paws are pressed tightly together, and moved backwards and forwards with a steady sweep, this alternate action giving precisely the same sort of wedge, or inclined plane, that is formed by the simultaneous action of a man's legs while swimming on his back.

Man, however, when he really can swim well, exhibits this principle very clearly. When a good swimmer is lying on his back and propelling himself as fast as he can, he always gives a kind of half-turn to the body, so as to obtain a screw-like action of the legs, thus increasing his speed without increasing the force of his stroke.

Steering the course is easily managed by means of the legs. If the left leg is allowed to remain still, and the right leg is used, the body is driven to the left, and *vice versa* when the left leg is used and the right kept quiet. The young swimmer must remember that when the legs are brought together they must be kept quite straight and the knees stiff. The toe should also be pointed, so as to offer no resistance to the water.

Swimming on the back is a most useful branch of the art, as it requires comparatively little exertion, and serves to rest the arms when they are tired with the ordinary mode of swimming. All swimmers who have to traverse a considerable distance always turn occasionally on the back. They even in this position allow the arms to lie by the sides until they are completely rested, while at the same time the body is gently sent through the water by the legs.

Let swimming on the back be perfectly learnt, and practised continually, so that the young swimmer may always feel secure of herself when she is in that position.

The feet should be kept about twelve or fourteen inches below the surface of the water, as, if they are kept too high, the stroke is apt to drive the upper part of the head and eyes under the water.

It must always be remarked that it is impossible to arch the spine too much, or to press the head too far between the shoulders.

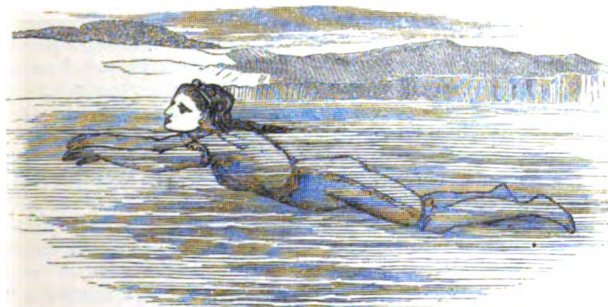
### SWIMMING ON THE CHEST.

We now come to swimming on the chest, which is the mode adopted by

most persons, and which, together with swimming on the back, will enable the learner to perform almost any aquatic feat.

In order to begin with confidence, walk into the water until it is almost as high as the chest, and then turn towards the land, so that every movement may carry you from the deeper to the shallower water. Next place your hands in front of the chest, the fingers stiff and pressed together, and the thumb held tightly against the forefinger. Do not press the palms together, as too many books enjoin, but hold the hands with the thumbs together, the palms downwards and the backs upwar is.

Now lean gently forward in the water, pushing your hands out before you until the arms are quite straight, and just before your feet leave the bottom give a little push forwards. You will now propel yourself a foot or two



towards the land. Try how long you can float, and then gently drop the feet to the ground. Be careful to keep the head well back and the spine arched.

Repeat this seven or eight times, until you have gained confidence that the water will support you for a few seconds. The accompanying illustration shows the proper attitude.

Now go back to the spot whence you started, and try to make a stroke. Lay yourself on the water as before, but when the feet leave the bottom draw them up close to the body, and then kick them out quickly. When they have reached their full extent, press them together firmly, keeping them quite straight and the toes pointed.

This movement will drive you onwards for a short distance, and when you feel that you are likely to sink, drop the feet as before. Start again and make another stroke, and so on until the water is too shallow.

At first you will hardly gain more than an inch or two at each stroke; but after a little practice you will gain more and more until you can advance three or four feet without putting the legs to the ground. It is a good plan to start always from the same spot, and to try in how few strokes you can

reach the land. There is a great interest in having some definite object in view, and one gets excited in trying to reduce the number of strokes.

The action of the legs may be seen in the illustration.

The next point is the movement of the arms.

In reality the arms are more valuable in swimming than the legs, and for this simple reason: any one who has the use of his limbs at all is obliged to use his legs daily, and that to a considerable extent. However sedentary he may be, he must walk up and downstairs twice at least in the day. He must walk from one room to another. He must get into and out of his carriage, and walk a few paces to his office. And in all these little walks his legs have to carry the weight of his body, which, to set it at the least figure, weighs from seventy to ninety pounds.

The legs, therefore, are strengthened and hardened by continual practice; but the arms have scarcely anything to do. They hang quietly by the side, they rest on the knee or on the table, and their average work is comprised in turning over the leaves of books, using a needle, or wielding a pen. They are unaccustomed to hard work of any kind, and therefore fail as soon as they are put to severe and novel labour. They soon become tired, the muscles refuse to obey the orders of the mind, and in a few hours the arms are so stiff that they can hardly be used at all.

Now for the use of the arms.

Place yourself with your face to the shore, as already directed, and make the stroke according to the regulations.

But, just before the force of the leg-stroke is exhausted, spread the arms as widely as possible, turn the palms of the hands a little outwards, and bring them towards the hips with a steady, regular sweep.

This movement will have two effects. It will support the body, and it will continue the propulsive force which was just given by the legs.

Be very careful not to hurry this stroke, and especially not to shorten it. Beginners generally make six or seven little strokes, keeping their arms bent during the whole time; but in correct swimming the arms should be sent forward to their utmost length, and the hands brought to the hips in a slow, uniform sweep.

Let this be practised over and over again, until it is perfectly learnt.

Even at home and on dry land it can be practised with tolerable success, by lying on a chair in front of a large mirror, and making the stroke repeatedly until it looks quite exact. About eighteen or nineteen strokes to the minute is quite fast enough for all ordinary purposes. In ordinary swimming sixteen is our usual average. Still, we cover so much water at each stroke, that in the long run we come in far ahead of more showy swimmers, who wear themselves out in the first half-mile, and then are caught and passed with ease.

**A COMMON FAULT.**—When swimming on the chest, take particular care to avoid an error into which the beginner almost invariably falls.

Being extremely anxious to keep the nostrils well above the surface of the water, the swimmer is apt to press downwards her hands, so as to raise her head and neck, and often part of the chest, completely out of the water.

Now, it is scarcely possible to make a worse mistake than this. By so doing the swimmer actually supports a considerable weight *in the air*, and might just as well hang some four or five pounds' weight of lead round her neck. In the second place, she tires her arms most needlessly by forcing them to perform a totally unnecessary action. They will have quite enough work to do in making the ordinary stroke, without adding to them the labour of supporting the head above water.

The very principle on which all swimming is founded is that of making the water support the body, and, therefore, of supporting every part of the body by the water. If even a finger be lifted above the surface, the unsupported weight of that finger tends to press the body under water. A showy or "high" swimmer may look very well to an inexperienced eye, and may take the fancy, like those lofty-actioned trotting horses, which are so appropriately called "flat-catchers."

But there is no endurance about either one or the other; and it may be assumed as a self-evident fact that if two persons of equal strength enter in a match of any athletic exercise, and that one uses exertions which the other does not employ, the former will be tired sooner than the latter.

So our advice to our readers is: first practise the stroke quietly and repeatedly, putting down the feet after each stroke is completed; then try to manage two strokes without putting the feet to the ground; then try three strokes, and so on, until you can make some four or five strokes without distressing yourself.

Having achieved thus much, make your mind easy: you have conquered the art of swimming. If you can make five strokes, you can make fifty, provided that you do not hurry them.

Should you feel yourself getting tired, or if a feeling of nervousness should come over you, the remedy is easy enough. Turn on your back, and paddle along quietly until your arms are rested. Then turn over and proceed on your course. So important is this one rule that we repeat it again: **DO NOT HURRY YOUR STROKE.** It is hardly possible for the learner to be too slow.

In connection with the ordinary breast-stroke we must mention one very important point, namely, the manner of taking breath. If the swimmer lies, as she should lie, as low as possible in the water, she will find that at each stroke the water reaches to her lips, and will sometimes curl even over her nostrils.

If, therefore, she were to take an inspiration while she is making the stroke, she would immediately draw some water into her lungs, and the only result would be that she would begin to choke and to cough, and would probably sink.

But if she makes a habit of expelling the air from her lungs as she makes the stroke, she need fear no danger of the kind, for the expelled air will drive away the water, and even if her nostrils should be covered, they would not take in one slight drop. It naturally follows that the proper time to take breath is while the arms are just beginning to make the stroke, and when the force of the leg-stroke is almost expended.

Whilst we are on this point, we will just mention two cases in which it



is extremely difficult to manage the breath. One is when the swimmer is bathing in the sea, and when the wind has suddenly chopped round, so as to knock up a cross sea.

We know nothing so worrying as a cross sea. There is no possibility of calculating upon it. All seems to be going on right, there is a nice smooth piece of water which seems as if it would last at least three strokes; suddenly, up starts a watery hillock from the smooth green surface, its top becomes whitened with foam like the neck of a champagne-bottle, and the wind picks off the foam and dashes it in the swimmer's face, stinging as if every drop of water were a birch twig.

Then, just as the bather has revived from the sudden blows, and is trying to get a quiet breath, one of the regular waves comes rolling up, dashes in a solid mass over her head, and entirely disconcerts her projects.

We have swum in many a sea both when the surface was as smooth as a mirror, and when it was rolling in huge mountain masses. But we never felt nervous about ourselves except on one occasion, when a nasty rough cross sea was knocked up by a sudden change of wind. It was the first time we had experienced a cross sea, and we did not like it—realizing, indeed, for the first time, and we hope for the last time, in our lives, that water was an element that might be dreaded.

Now we know better, and care very little for a cross sea. Under such circumstances we only use one hand at a time, and whenever we wish to take a breath, we hallow the other hand and place it over the nostrils. Quite enough air can be drawn through the fingers, but the water can make no entrance. Of course, this is rather an awkward looking method of swimming, but when we want air we care very little about looks.

The second case is when the swimmer is descending a fresh-water rapid. Now, nothing is easier than going down a rapid, though many persons have been drowned in them. Do not try to swim at all, and never make a stroke unless you wish to alter your course; but keep one hand over the nostrils, as above mentioned, and with the other and the feet keep beating the water, so as to raise yourself as high as you can out of it. Keep your legs as high as is consistent with holding the head well out of water, so as to avoid the chance of being caught in one of the whirlpools which are mightily prevalent in rapids, and which pull the swimmer under water as quickly as if her feet were tied to a weighted rope.

### THE SIDE-STROKE.

The celebrated side-stroke is so called because the swimmer lies on the side.

The side-stroke is thus managed: the swimmer lies on her right side, stretching her right arm out as far as she can reach, keeping the fingers of the right hand quite straight and the hand itself held edgewise, so as to cut the water like a shark's fin. The left hand is placed across the chest, with the back against the right breast, and the swimmer is then ready to begin.

She commences by making the usual stroke with her legs, the right leg, being undermost, doing the greater share of the work. Before the impetus

gained by the stroke is quite expended, the right arm is brought round with a broad sweep, until the palm of the hand almost touches the right thigh. At the same moment the left hand makes a similar sweep, but is carried backwards as far as it can go.

The reader will see that the hands act directly upon the water like the blades of a pair of oars, and do not waste any of their power by oblique action.

In ordinary swimming we seldom use the left arm, but allow it to hang quietly in the water, so that it may be perfectly ready for work when wanted. Then, after some little time, we turn round, swim on the other side, and give the left arm its fair share of labour.

### VARIATIONS IN SWIMMING.

We now come to a few of the most useful variations in ordinary swimming.

The first of these is the stroke which is called *TREADING WATER*. This is employed when the swimmer wishes to raise her head as high out of the water as possible, and is particularly useful if she is reconnoitring, or if she is trying to save a drowning person, or if she wishes to grasp a bough or a rope above her head. Keep the body perpendicular, and make precisely the same stroke with the legs as is done in ordinary swimming. This action will keep the head freely out of the water, and if assisted by the hands the body will rise as far as the shoulders.

Some persons literally "tread" the water, striking each foot alternately as if they were ascending a staircase. We have thoroughly tried both methods, and much prefer the former.

### DIVING.

Having now tolerably mastered the surface of the water, the learner must proceed to explore its depth. It is, of course, a great thing to be able to support the body in the water; but the swimmer's education is only half completed until she knows how to dive. Many lives have been saved by the ability to dive; many have been lost from its absence.

Many a man has saved his own life when escaping from enemies by diving and swimming under water to some place of refuge, or by passing along out of sight of his enemies, merely allowing his nostrils to appear above the surface at intervals. Many a man—and woman too—has saved the life of another by diving after the sunken body and bringing it to the surface before life was extinct. Therefore our counsel is that the young swimmer learn to dive without delay.

The first object is to keep the eyes open while under water. In order to do this, sink yourself well under the surface, hold your hand before your face, and try to look at it. Don't be afraid of water getting into the eyes. A chance drop of fresh water flitted into the eyes will make them smart, but you may keep your eyes open even in salt water as long as you like without the least irritation.

Some persons recommend that the first experiment be made with a basin of water, in which the head is to be plunged. We specially recommend that this should *not* be done, and that the first experiment should be made while bathing.

When the young swimmer has learnt that she really can keep her eyes open under water, she should drop to the bed of the sea or river, where it is about four feet in depth, some white object—one of the well-known alabaster eggs used for deluding sitting hens is as good an object as can be found. Still, a lump of chalk, a thick gallipot, or anything of a like nature, will do very well.

Now try to stoop and lift the egg, and you will find two results. The first is that the egg will look as large as a hat, and the second is that you will find very great difficulty in getting to it.

Now try another way of getting to the egg. Drop it as before, spring up as high as the waist, bend your body well forward, throw the feet in the air, and try to reach the egg head foremost. At first you will find this rather difficult, but after a little practice it will come easy enough. Be careful to stand at some little distance from the egg, or you will overshoot it.

Next drop the egg, go back some eight or ten yards, swim towards the object, and dive for the egg from the swimming posture. This is not very easy at first, on account of the difficulty in getting the chest below the surface. If, however, the legs are thrown well up in the air, the weight forces the body under water.

The next object is to try how far the swimmer can proceed under water.

Swimming under water is managed in nearly the same manner as swimming on the surface. But, in order to counteract the continual tendency upwards, the swimmer must always keep her feet considerably higher than her head, so that each stroke serves to send her downwards as well as forwards.

One of the chief difficulties in diving is to keep a straight course, because there is seldom anything under water by which to steer. In a river, when the water is clear, it is generally easy to look upwards and watch the trees, posts, or other objects on the banks; but in the sea it is a very different business, and the swimmer must have learnt to make her stroke with great regularity before she can dive in a straight line.

### THE HEADER.

Now the young swimmer must learn how to enter the water in a graceful manner. Let her not try too much at first. She should go to the bank of a river where the water is only a few inches below her, and there make her first attempt at springing in. She should stoop down until she is nearly double, put her hands together over her head, lean over until they nearly touch the surface, and so quietly glide, rather than fall, into the water. At first she will be sure to lose the proper attitude, but in a little time she will manage without difficulty. This should be done over and over again, and each time from an increased height.

Next, the learner should take a short run, and leap head first into the water from the place where she took her first lesson at plunging, so that the water is no great distance from her.

She should then remain quite stiff, straight, and still, and see how far her impetus will carry her. This is technically termed "shooting."

*Keep the body, arms, and legs perfectly stiff, and all in the same right line.* Any one who can do this can leap from great heights without danger.

### MISCELLANEOUS INSTRUCTIONS.

In this, the concluding section, we give our readers some instructions which will be found of great practical use.

In the first place, practise every possible method of keeping afloat under disadvantageous circumstances, so that, if any accident should happen, you may always know instinctively what to do, and may do it without having to think about it.

We will now mention that terrible swimmer's bane, the CRAMP. Perhaps more good swimmers have been drowned by cramp than by anything else, and only those who have suffered from it can conceive its fatal power. Strong men and good swimmers, when seized by the cramp, have been known to sink instantly, overcome with the sudden pain; and nothing can save the victim but the greatest presence of mind.

The usual spot where the cramp is felt is the calf of the leg, just below the knee; and it sometimes comes with such violence that the muscles are gathered up into knots.

There is only one method of proceeding under such circumstances. Turn on the back at once, kick out the leg in the air, disregarding the pain, and rub the spot smartly with one hand, while the other is employed in paddling towards shore.

These directions are easy enough to give, but most difficult to be obeyed: cramp seems to deprive the sufferers from it of all reason for the time, and to overpower them with mingled pain and terror. Still, there is no other hope of reaching shore than that which is here given.

The causes of cramp are generally twofold. The principal cause lies in indigestion, for it is seldom that a person in really good health is attacked by this malady. The second reason is over-exertion of muscles that have been little used, and therefore too strong a leg-stroke should always be avoided.

Another thing which demands great practice is the method of saving a drowning person. The chief difficulty lies in the fact that a person who cannot swim feels, in deep water, much as if he were falling through air, and consequently clutches instinctively at the nearest object. And if he succeeds in fixing a grasp upon the person who is trying to save him, both will probably sink together.

Therefore, every precaution should be taken to prevent such a misfortune, and the drowning man should always be seized from behind, and pushed as

it were in front. Should he succeed in fixing his grasp, the only remedy is to dive, when it will be found that he will loosen his hold on finding himself below the surface, and will allow his rescuer to take a better position. We used to practise this art, each in turn enacting the part of a drowning person, and trying to grasp our companion, who was trying to bring us ashore. It was capital practice, and one that is much to be recommended.

## RIVER-BOATING.

**INTRODUCTION.**—When sitting down to teach the art of Rowing, we must confess that, had it been possible, we would rather have taken up an oar than a pen. First impressions, however, are not always to be depended upon: in this very instance, we are not at all certain that we cannot give a good deal of information and do a considerable amount of good even with the instrument to which we have been reduced.

We can prevent you from acquiring a faulty style and bad habits which are so fearfully difficult to drop. We can describe to you all the different classes of boats on the river, so that you will know what they are called, and what they are used for, when you see them; and when you hear people talking about "tubs," "canvasses," "whiffs," &c., you will know what they are speaking about; and, finally, among other things, we can give much information which will be most useful to you when on the river, and which, if you have not been regularly taught, you must have had very little chance of obtaining. You cannot always have a professional waterman at your elbow, but you may easily carry the following advice in your mind.

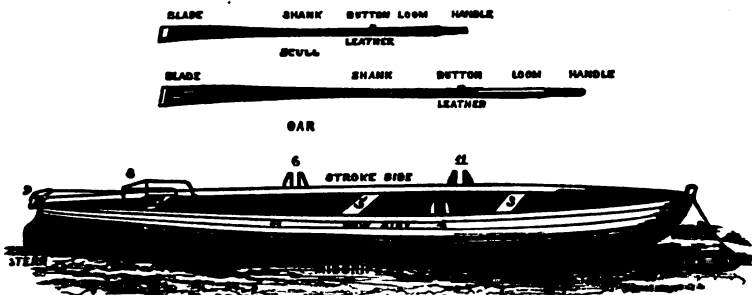
**PRELIMINARY REMARKS.**—Rowing is one of the most useful of the outdoor sports, as it is far more than a mere pastime, and ranks almost on a par with swimming. It is the most healthy of all exercises, as *good* rowing exercises every part of the body equably and at the same time; and if the rower is in a good state of health, it cannot only do her absolutely no harm, but much good; but all violent exertion is hurtful to those of a weak constitution, especially to delicate girls. Before learning how to row, it is essential that you should know how to swim. Boats are liable to be upset even when in the most experienced hands, and any one unable to swim not only risks her own life, but seriously endangers those of others. Many of the rowing-boats on a river are so exceedingly light, or cranky as they are called, that a young oarsman or oarswoman, as he or she takes a place in one, cannot but feel that an upset is not an unlikely occurrence. The knowledge that one would sink like a stone in such a case would not by any means be an assistance to us in learning how to row skilfully and fearlessly.

Try and avoid being on the water either too early in the day, when the morning dew is unwholesome, or too late, when the heavy evening mist is equally objectionable.

We shall restrict ourselves in this paper entirely to rowing on fresh water, for it is scarcely any exaggeration to say that on a river you see good rowing and bad sailing, and on the sea good sailing and bad rowing.

The popularity of rowing is remarkable, it seems so unmistakably a true British pursuit; and young ladies have of late years taken to rowing, as to many other exercises once solely usurped by boys and men.

Before describing all the different classes of river-boats, it will be best to begin with the model of an ordinary pair-oar GIG or DINGY.



*References to Numbers.*

- |                      |                    |   |
|----------------------|--------------------|---|
| 1. Stem or Outwater. | 5. Stroke Thwart.  | 9. Yoke and Yoke-line.                  |
| 2. Painter.          | 6. Stroke Rowlock. | 10. Rudder.                             |
| 3. Bow Thwart.       | 7. Stem Thwart.    | 11. Extra Rowlocks for double sculling. |
| 4. Bow Rowlock.      | 8. Chain-rail.     |   |

The other parts of a boat, which cannot well be shown in the model are—

**The Thole.**—That part of the rowlock against which the oar rests while pulling.

**The After-thole or Stopper.**—The opposite side of the rowlock.

**Clockheads** support the tholes.

**Filling.**—The leather at the bottom of the rowlock.

**The Keel.**—A long piece of wood running along the bottom of the boat.

**Strains.**—The planks with which a boat is built.

**Garboards.**—Those nearest the keel.

**Gunwale.**—The top strain.

**Bulwark.**—Above the gunwale: seldom used in river-boats.

**Stretchers.**—Against which the feet of the oarswomen rest.

**Stretch-pieces** support the stretchers.

**The Lands.**—The inside supports of the boat.

**Knees.**—Pieces of wood which fasten the thwarts to the boat.

**Burthens or Bottom-boards.**—The flooring at the bottom of the boat.

**State-room.**—The space between the coxswain and stroke's seat.

**The Waist.**—Between the midship and forward thwart.

**The Stern-post** fits into the keel, and on it is hung the rudder.

**Tingles** attach the rudder to the stern-post.

**Transom.**—Square-sterned boats are made with one.

*Bilge-piece*.—A long piece of wood tapering off at the sides, and placed at the lams of the second and third straik, counting from the keel.

*Lans*.—Where one straik overlaps the other.

*Skin*.—The planking of a boat.

*Steerage* comprises yoke, yoke-line, and rudder.

### THE TECHNICAL TERMS IN USE.

*Bow*.—The name given to the rower who sits on the forward thwart in a four or eight-oar.

*Stroke*.—The sternmost oar in a boat in a four or eight-oar.

*Coxswain*.—The steerer, who sits in the sternmost thwart.

*Starboard* is the right-hand side of the steerer.

*Larboard* or *Port*.—The left-hand side.

[These terms are really sea terms; on a river it is sufficient to say bow and stroke sides.]

*Clinker-built* boats have the straiks overlapping one another.

*Corbel-built* boats have the straiks edge to edge, which gives a perfectly smooth surface. (Wager-boats are corbel-built.)

*Hitcher* or *Boat-hook* consists of a *staff* or *hoe*.

*To Bale*.—To throw water out of a boat.

*Tracking*.—Another name for towing.

*Kink*.—A twist in a rope.

*Beam*.—Width of a boat.

*Fore* and *Aft*.—Front and back part of a boat.

*Porting the Helm* is more a sea than a river term: the effect is the same as pulling the right-hand yoke-line.

*Unshipping* or *Shipping*.—Taking the oar or scull out of and putting it in the rowlock. Unshipping is done by raising the hand smartly upward.

*Backing Water*.—Reversing the blade of the oar or scull, and rowing forwards.

*Boat* in technical language means the crew of the boat.

*Ship*.—The boat itself.

*Catching a Crab*—a terrible sound to all beginners—is caused by the oar turning in the water the wrong way; this forces the blade down, and causes the handle to knock the unfortunate oarsman off his seat. The only way of avoiding this misfortune is to unship the moment it is felt that all control has been lost over the oar.

*Rowlocks*.—There are three sorts of rowlocks:

*Outriggers*, introduced by the celebrated Clasper, of Newcastle, in 1841, who also invented the oars and sculls which are now used with all boats;

*Swivel*, principally used in sea-boats;

*Inrigged*, which may be of the gig or skiff clan. (*Vide* description.)

### BOATS.

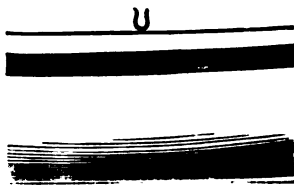
A *Gre*.—This plan of boat can be described shortly by saying that it is a broad high boat, with inrigged rowlocks, a straight gunwale, a narrow keel, nearly an upright stern, a transom, and that it carries a steerer.

There are sculling gigs, pairs, fours, and eights. They are perhaps the commonest class of pleasure boats on a river, and the pair-oar (see model) are the most often seen of the class. Gigs, with short movable outriggers, are very popular out of Oxford and Cambridge. These boats are rather larger and narrower than the inrigged gigs. The rowlocks are either fixed alternately as in all-right boats, or are doubled so as to allow for sculling.

**DINGY.**—Another name for a short inrigged gig.



SKIFF ROWLOCK.



SWIVEL ROWLOCK.

**SKIFFS** were once very popular, but have now been to a great extent supplanted by gigs. A skiff is not very unlike an inrigged gig; it is rather heavier, has not so upright a gunwale, and has a different rowlock, which is best explained by the annexed outline.

It is considered by some, and notably by the Author of the "Oarsman's Guide to the River Thames," to be the best class of boats for travelling purposes.

A **SKIFF** is a short, tight sculling boat, with skiff rowlocks.

A **RANDAN** may be either of the gig or skiff class, and it is the only boat which admits of a combination of sculling and rowing. Three persons row in this boat. 1 pulls a bow-oar, 2 rows with sculls, and 3 pulls a stroke-oar; it also carries a steerer. It is generally from 30 to 35 ft long and 4 ft. wide amidships, in order to give ample space to the sculler. This rather "Cockney boat" is a very safe and handy one for river expeditions. The work in it is very easy; it carries luggage well, will sail very fairly and safely under a small lugsail, and is easy to get through a lock. On the other hand, it is barely possible to row or scull properly in it; the only chance is for the sculler to have outriggers.

A **WHERRY** is a boat we hear of more in history than see on the water. It is of the skiff class, but shorter, broader, stronger, and heavier, with bows projecting out of the water.

A **SHALLOP**.—An old-fashioned and large boat, used for pleasure parties and picnics. It may have any number of oars. Has a large state-room, and bows out of the water.

**TUB BOATS**, originally a *Tub*, was a name given to a boat which was not used for racing purposes; now the term is applied to all the heavier kind of racing-boats. They are long, narrow, gig-shaped boats, with long fixed outriggers, and may be either scullers, pairs, fours, or eights; the two first seldom carry a steerer. These boats on rough water, from their greater



steadiness and from their carrying a keel (an immense advantage in steering), are almost as fast as the canvass or wager-boats. To all-right boats a strap is attached to the stretcher for the rower to put her feet in.

A FUNNY is a heavy wager sculling-boat; it has a keel, is canvassed over, and is generally clinker-built. It is shorter and broader than a racing-boat.

A NOAH'S ARK.—The Cambridge name for an ordinary Funny.

A WHIFF is a light sculling-boat, very like a Funny, except in not being canvassed over; it is easily upset.

A GALLEY.—Another name for a tub eight; originally it was only applied to an inrigged eight.

A CUTTER is, properly speaking, any boat which takes a full-lengthed oar. Now the name is generally given to a racing eight.

TOM-TIT or JOLLY-BOAT.—A very short broad boat, useful for sailing.

A PUNT.—A very strongly-built boat, with straight sides, flat bottom, and square ends. It is shoved along by means of a punt-pole, and has no rudder.

### THE ART OF ROWING.

Step into the boat carefully—no jumping in. See that the mat is fairly fastened to the thwart, and on the proper side of the boat, and take your appointed place. Stroke always sits on the right hand of the steerer, and rows on the port side or left hand of the steerer; Bow exactly the reverse. Understand your stretcher—how to lift it, and what length you require; your knees should be neither too high nor too low. There are three kinds of stretchers: the common old-fashioned one, secured by means of stretch-pieces; those which, in addition to the stretch-pieces, are fastened with an iron band and hook and eye; and those which are secured by means of screws. Stretchers in light boats have straps attached to them. Place both your feet in them, otherwise you may pull sideways, or *screw*. You ought, however, to be able to row without the assistance of any straps. The oar, which should be roughened in the handle, ought just to clear the side of the boat; a full-lengthed oar is about 13 ft. 5 in. long, but in an inrigged boat the oar is shorter. Grasp the handle of the oar with both hands, thumbs under, the top hand close to the end of the oar, the other 2 inches nearer the rowlock. Some oarsmen keep the thumb of the outside hand over: in rough water they must be liable to have the oar jerked out of their hands altogether. Stretch out your arms before you to their fullest extent, elbows straight, hands low, and the blade of the oar at a *right angle* with the water. Your head should be erect, though a little forward, the shoulders square, the back straight, and your knees well bent. Drop the oar into the water and *feel* the water at once—that is, begin to pull instantaneously. This is what is called the *catch in the beginning*, and it is, perhaps, the most important part of the stroke. The blade of the oar should be covered and no more, but this should be done at the very commencement of the stroke, and kept to exactly the same depth in the water to the end. There is no greater mistake than beginning with a shallow stroke, and then deepening as you go on. We now come to the end of the stroke. You have

been pulling with the *whole weight of your body* as well as with your arms; you have been pulling with your feet pressed hard against the stretcher, so as to bring every muscle into play. Continue the pull until your body is rather past the perpendicular and your knees straight, when you will find that your stroke has done its utmost, and that it is mere waste of power to continue it. Bring your oar out of the water, drop your wrists, and turn the back of your hands towards the chest; this will bring the blade of your oar in a line with the water, which process is called *feathering*. Feathering will require some practice; you should not attempt it at first. At Cambridge, where the water is very smooth, after the feather the blade of the oar is kept very low on the water; at Oxford and elsewhere, it is usual to feather much higher. Though not so graceful to look at, the latter method is by far the most useful. Your oar out of the water, recover your body with an elastic bound from the hips. Throw forward your arms *simultaneously* with your body, as already described, still keeping the blade of the oar horizontal with the water until you have got your hands well over your toes, when you are ready to turn the blade at a right angle with the water, and recommence your stroke. We have not half done yet. Besides rowing well on your own account, you should try to row in the same style and pull the same kind of stroke as the other rowers in the boat. You should keep exact time; hurrying on the stroke is a very common fault. Your oar should dip into the water at the same moment as the other oar or oars are dipped, and you should finish the stroke at the same time. This can only be done by keeping your eyes in the boat, carefully watching and imitating whoever is in front of you. The stroke should be as long as possible. In swinging up and down on the stroke, you must swing straight and evenly. Any jerking, screwing, or pulling sideways is utter destruction to yourself and to everybody else in the boat.

In a light or outrigger boat more care will be necessary than in a heavy irriged one. In the case of outriggers the oar is placed in the rowlock after you have taken your seat, but before you arrange the stretcher.

### SCULLING.

Sculling is rowing with two small oars or sculls. A sculling-boat may be of any size or of any class, only the heavier sort carrying a steerer. The sculler sits exactly in the centre of the boat. The sculls, which should not be too heavy, should overlap three or four inches. The sculler should grasp the handle of each scull, thumbs under, and scull according to the directions given for rowing, with this difference—that each hand has to do in sculling the work of two in rowing.

To prevent the handles of the sculls dashing against each other, one hand should be kept slightly uppermost. Sculling, to a beginner, is certainly more difficult than rowing. To make the two sculls do exactly the same amount of work and act as exact counterparts of each other will require considerable practice. Another difficulty is the steering. At least once in every half-dozen strokes the sculler will find it necessary to turn her head and neck—but not her body—to look behind her. The principal

## FAULTS IN ROWING,

most of which are given in treatises on the subject, are :

1. The rower or sculler omits to straighten both arms before her.
2. Continues to place her hands forward by a subsequent motion after the shoulders have attained their full reach, which is getting the body forward without the arms. Every part of the person should move in unison.
3. Extends the arms without a corresponding bend on the part of the shoulders, which is getting the arms forward without the body.
4. Catches the water with unstraightened arms; thus time may be kept, but not stroke.
5. Hangs before dipping downwards to begin the stroke.
6. Rows shallow; that is, does not cover the blade up to the shoulder.
7. Rows too deep; that is, covers the bladed part of the shank of the oar or scull.
8. Rows round and deep in the middle of the stroke, with hands high, and blade still sinking after the first contact.
9. Curves her back forward and aft. Persistent stooping is most injurious to the rower.
10. Keeps one shoulder higher than the other.
11. Jerks.
12. Rocks.
13. Bends over the oar at the feather, thus bringing the body up to the handle, instead of the handle up to the body.
14. Strikes the water at an obtuse angle, instead of at a right angle.
15. Rows the first part of the stroke in the air.
16. Cuts short the end of the stroke, prematurely slackening the arms.
17. Shirks—a combination of Nos. 4 and 16.
18. Screws or rolls backwards, with an inclination towards the inside or outside of the boat.
19. Turns her elbows at the feather, instead of bringing them sharp past the flanks.
20. Keeps the head depressed between the shoulders instead of erect.
21. Looks out of the boat instead of straight before her. This inevitably rocks the boat. Looking at the blade of the oar whilst rowing is a very common fault with beginners.
22. Throws up water forward instead of aft.
23. Causes a splashing by dipping the oar in the water before finishing going forward.
24. Leans on the rowlock.
25. Runs away with the stroke.
26. Rows a single careless stroke.
27. Moves in her seat whilst rowing.

## STEERING.

The steering of a *sculling-boat* has been already explained.

In a light *pair-oar* without a coxswain the bow-oar steers, so regulating

her stroke as to keep the boat straight in its course. The stroke-oar rows on steadily, in no way interfering with the steering.

A lady should learn to steer in a small but heavy boat. When she has learnt to steer this boat with a moderate use of the rudder and as few zig-zags as possible, let her try a larger one. The yoke-lines are twisted round her hand. To whatever side she wishes the boat to move, she pulls the line on the opposite side. The pull should be a steady and even one, not hard or jerking; the yoke-line should always be kept tight. Whenever necessary, the coxswain should call upon the bow or stroke-side oars to assist by pulling, backing, or holding water, in altering the course of the boat. The only chance of keeping a straight course while steering is to steer for some fixed point. The strength of the current or tide, the effect on the water by a projecting point of land or by a small bay, the nature of backwaters and of eddies, can only be learnt by experience. Wind is one of the greatest enemies of the young steerer. With a strong side wind the stern of the boat has a tendency to turn away from the wind, which gives increased labour to the oars on that side. As in such a wind the boat is driven bodily to leeward, the bows should be directed to some place to windward (the point from which the wind comes) of its destination.

**TURNING.**—A sculler would turn her boat by backing or holding water with one scull and rowing with the other. A rowing-boat is turned on the same principle, with the assistance of the rudder.

**BACKING.**—How to back water has been already explained. It must not be forgotten, whilst backing with the rudder fixed, that the yoke-lines are to be pulled on principles the exact opposite of ordinary steering.

**LANDING.**—In landing or getting a boat alongside, it is better, if possible, to row up stream. The head of the boat should be steered for the landing-jetty or wharf, and the tide or current will drift the stern level with the shore. In a heavy or irigged boat, the oars or sculls would be unshipped and placed in the boat blades *forward*.

**PASSING.**—In passing, a boat—unless there is plenty of room between the boat and the shore—keeps on the outside.

**MEETING.**—If the boats are very close, the sculls or oars should be unshipped and allowed to drift alongside. The boat which has the tide in its favour must get out of the way. The general rule is that boats pass each other on the left side; that is, a steerer would pull her right yoke-line, and a sculler would pull her left scull. The rule is the same on a river for boats as it is on a footpath for pedestrians. Different rivers have sometimes different rules. On a race-course every boat is expected to get out of the way of any boat going over the course, whether racing, practising, or otherwise. The winners should also always be allowed their own course as they return.

**CROSSING.**—A boat crossing another should, if coming down stream, keep astern of it; the same if crossing the course of a barge, as by so doing you avoid the danger of "heading" it.

**TRACKING OR TOWING.**—All pleasure-boats should be furnished with a towing-rope and mast. If there is any tracking to be done, the steerer

should at starting so hold the rudder that the bows of the boat are sent out into the stream, otherwise they would to a certainty be pulled into the bank.

**WEIRS.**—In going down stream great care should be taken not to approach too closely to a weir, which in England is seldom protected. Keeping on the same side of the river as the towing-path, and crossing where the ferry shows the path has changed sides, will prevent any unfortunate mishap on a strange river. A weir always announces the presence of a lock.

Locks are the greatest nuisances on a river. They occur every two or three miles on the Thames, and about ten minutes should be allowed for getting in and out of one. In every respect it is more difficult to pass a lock going up stream than down: some skill and considerable care is *always* required to avoid danger. Boats are more easily managed with sculls than with oars. On arriving near a lock, call out, "Lock!" and keep well away from the gates until they are completely opened: You will find all sorts of cross-currents and backwaters will try to get the upper hand; but as long as you keep clear of any obstructions and have the free use of your oars and sculls, you are all safe. On entering the lock you will have to contend against the strength of the water, which, in issuing out of the lock gates, has a tendency to turn the boat round the moment her nose shows inside the gates. Ship your oars and let your companions be ready with a boat-hook; and if you have outriggers, be particularly careful they do not hit or get jammed against anything. When inside the lock and the gates closed, you may either keep in the middle of the lock with the sculls out, or be alongside, holding fast to the sides, but looking out that the boat's gunwale or outriggers are clear of any projection. The boat must be kept as close as possible to the lower gate—the one which has just been passed—as the drawing of the upper sluices, in order to fill the lock, will cause an eddy, out of which it is better to keep. When the water has risen to its proper height, the upper gates are opened, through which it is easy enough to pass. Passing a lock down stream is much more simple; the water outside it is quiet: the principal thing to be avoided is not to go in too fast. When inside, keep by the upper gates, as the water which is being let out of the lock always sucks the boat towards the lower gates. Inside a lock strict command should be kept over the boat, otherwise she will either hitch against the side, or be thrown athwart the lock and inevitably be filled.

On the Thames below Oxford, and on the main portions of other English rivers, there are lock-keepers attached to every lock.

It may be useful to mention that the first lock on the Thames is at Teddington; and that to the time of high water at London Bridge there should be added—if you wish to know the time of high water on other parts of the river—35 minutes in the neighbourhood of Chelsea, 50 minutes at Putney, 1 hour at Hammersmith, 1 hour 10 minutes at Barnes, 1 hour 30 minutes at Kew, and 1 hour 50 minutes at Richmond.

The head or fore-part of a boat is called the *bow* or the *bows*; the other or after-end is the *stern*. Sitting aft in the *stern-sheets*, as the place for the steersman is called, and looking towards the bow, the left hand is called

the *port* side (formerly "larboard"), and the right *starboard*. The sides of the boat near the stern are called respectively the port and starboard *quarters*. *Beam* means breadth: thus, "the boat has 6 ft. beam;" "great breadth of beam." *On the beam* means on or opposite to the side. (The beams of a ship are the transverse timbers which support the decks: their length, therefore, becomes a measure of the ship's breadth; hence the term.)

The direction in which the wind blows is called *to windward*; the opposite direction, *to leeward*. When a ship drifts sideways or backwards from the wind, she is said to be *making lee-way*. The *weather* side of anything is that against which the wind blows; the other is the *lee* or sheltered side. To weather an object is to pass on the windward side of it—between it and the wind, in fact.

## SKATING.

There is none of the athletic sports which is so difficult to learn from books as is skating; and all that can be reasonably expected from a book is that instructions shall be given in the position of the feet, the carrying of the body, and the avoiding of faults which often mar the appearance of an otherwise good skater.

In the first place, let the skates be exactly the length of the foot, neither more nor less, and rounded (not turned up) at both ends. By far the best skates are those which are permanently affixed to the boots; but as this plan sacrifices a pair of boots for the amusement of only a few days in each year, and is moreover a very costly one, the beginner had better procure a pair that can be put on and removed at will.

The mode of fastening the skates should be well considered. Avoid those which have the strap crossing over the instep, and choose those which have a very broad strap just over the toes, and one to hold up the skate at the heel. Pegs or screws at the heel are matters of choice.

If you have a friend who can skate, get him to take you into the middle of the ice. The best way is to place both feet together, and get him to push you gently along without your attempting to move either foot. This will also give you confidence in the supporting power of your skates. Should you feel yourself falling, do not attempt to save yourself, but drop down gently. Struggling is quite useless, and it is much better to sink down gently without a struggle than to fall heavily in consequence of it.

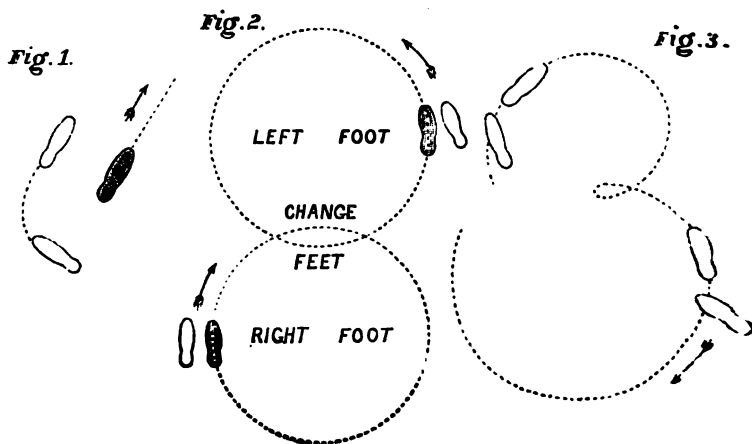
The best plan that can now be pursued is, that you should be left alone in the midst of the ice, and get on as you best can without the aid of an arm or even a chair.

Begin by putting out of your mind the notion of walking. Skaters place their feet *flat* on the ice, so as to slide along it, but do not rise on the toe as if they were walking.

The best way to learn to advance on skates is as follows: stand as if in the "third position" in dancing, as in diagram, Fig. 1, but with the heel of the right foot a few inches away from the hollow of the left. Then, with

the *edge* of the left foot press against the ice, so as to push the right forward. Bring up the left foot parallel with the right and slide along until the impetus is exhausted. Do this with both feet alternately for some little time, and you will then begin to "feel your skates," as the saying is.

After you have practised these movements for some time, gradually increasing the length of each stroke, you will begin to find yourself skating on the "inside edge," a movement to which nine out of ten skaters restrict



themselves. It is, however, an ungraceful plan and is of little use, except in racing, and, moreover, tires the ankle sooner than the "outside edge" skating, which is the only mode worth practising.

The mode of learning this is very simple. Put a stone or stick on the ice, to act as a centre for the circle which you are about to describe.

Now stand about three or four yards from the stone, with your right side towards it, and your head looking over your right shoulder at the stone. Press the outside edge of your left skate as firmly as you can into the ice, and with your left skate propel yourself round the stone, leaning as much inwards as you can.

After a short time you will be able to lift the left foot off the ice for a short time, and as soon as you can do this, try how long you can keep the left foot in the air. Practise these movements with both feet alternately until you feel that you can confidently trust yourself to the outside edge.

As soon as you are firm on the edge, try to describe a complete circle, taking care to keep the right knee quite straight and the left foot the least particle in advance of the right (see Fig. 2). When you can get completely

round on either foot, combine the two circles, as in the figure, and you have the 8, which with the 3 is at the bottom of all figure-skating.

Now for the 3. Start *forwards*, as before, on the outside edge of the right foot, but leave the left foot well *behind* the right, the toe slightly behind the heel, as in Fig. 3. Do not change the position of your feet, and you will find that when you have rather more than half completed your circle, you will spin round on the right foot and make half another circle *backwards*, as in the figure.

The books on skating say that, in order to turn round, the skater ought to rise on her toe a little. I consider this advice as totally wrong. True, the rising on the toe does bring the body round, but it gives an appearance

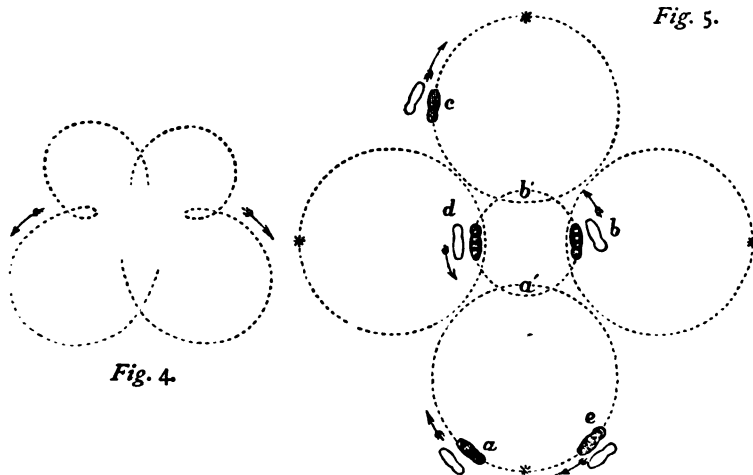


Fig. 4.

Fig. 5.

of effort, which a good skater never shows. If you will only keep the off foot well behind the other, you *must* come round at the proper spot, and without effort of any kind.

In fact, in all outside edge skating you steer yourself by the foot which is off the ice, and on no consideration ought any of the work to be done by the foot which is on the ice.

When you can cut the figure 3 equally well with either foot, combine them, as in Fig. 4, passing from one foot to the other without jerking yourself. Practise this until you do it without any effort, the mere swing of the body at the time supplying just enough impetus to carry you round.

The next thing to be done is to get on the outside edge *backwards*. This feat, difficult as it looks, and indeed *is*, at the first attempt, in reality is easy enough. It all depends upon the position of the feet. If you have



kept your feet precisely in the attitude which has been described, the outside edge backwards is a necessary corollary of the figure 3.

After you have turned on your right foot and got partly round the lower half of the 3, simply put your left foot on the ice and lift your right foot. Don't be afraid of it. Press the outer edge of the left foot well into the ice, and you *must* complete the circle. Provided that you do not alter the position of your head, body, or limbs, it is the easiest thing in the world. Only dare to do it, and it will be done.

When you have learnt to shift in this way from one foot to the other with ease, you will soon attain to the summit of a skating ambition, the quadrille.

This is skated by four persons, who describe the course shown at Fig. 5. They take their positions at the spots shown by the asterisks, and, at a given signal, all start at once. The first figure is shown by the diagram. The skater starts off on the *right* foot, as at *a*, and completes half the large circle. She proceeds to *a'*, where she changes feet, and on the *left* foot, or at *b*, goes half round the small circle as far as *b'*. Here she shifts to the right foot, on which she goes completely round the upper circle to *b'*, where she shifts to the left foot, changes to the right again at *a'*, and so on continually.

It will be found that if four skaters perform this manœuvre in exact time, they never interfere with each other, but that they diverge from and converge to the centre with absolute accuracy.

This is the simplest mode of doing the quadrille figure, but it has many varieties. For example, instead of simply going round the outer circles, the skaters spin round at the \* and come backwards to the central circle, as in the figure 3; then they shift to the outside edge backwards, and so on. Practice will soon make perfect.

We will end with a few cautions.

Keep the knee of the acting leg perfectly rigid: a knee ever so slightly bent ruins the effect of the best skating.

Never raise, bend, or fold your arms; but let them hang easily by your side.

Keep the toe of the off foot within an inch of the ice, and the heel rather up.

## ROLLER-SKATING.

(By a MEMBER OF THE LONDON SKATING CLUB.)

The introduction of roller-skating into this country as a popular amusement may almost be said to have effected a small revolution in our social life. The amusement which has so long been called for—a recreation in which young people of both sexes can join, which can be indulged in at all seasons of the year, in all weathers, and at any hour in the day—seems at last to have been found; and the enthusiasm with which the new fashion has been received appears to be something more than one of those evanescent “rages” which occasionally seize upon society.

A more innocent form of exercise than skating could hardly be imagined,

provided only it be taken in reasonable moderation. Like the most common and beneficial of all exercises—walking—which it greatly resembles, it brings into action all the limbs without unduly trying any one, and it fatigues without suddenly straining or rapidly exhausting the whole frame. Of course, a young lady who, after being accustomed to nothing but the most gentle exercise, or even to no exercise at all, should suddenly devote many hours at a stretch to skating or any other strong exertion, would very probably be prejudicially affected by so violent a change in her habits as well as by the unwonted fatigue. But it is useless to represent the illnesses or injuries contracted by those who act thus wildly and foolishly as resulting inevitably from the practice of skating. It would be just as sensible to attribute to it the colds and coughs and dangerous attacks of rheumatism which are provoked by the foolish people who, after getting hot on the rink, rush out, without any extra clothing, into the cold air, or, with still greater rashness, drive shivering home.

A rather better founded charge made against artificial skating is afforded by the accidents which too frequently occur. It cannot be denied that sprained wrists and ankles, and even broken arms and legs, are almost common casualties at many of the rinks. Yet, if an impartial investigation could be made into the causes of all these catastrophes—if some Captain Tyler of the rinks could be deputed by Government to issue a report thereon—it would be found that at least an enormous proportion are chargeable to the sufferers, and not to the art of skating as an art. Too many lady beginners, whose acquaintance with the science is of the most elementary order, are to be seen, under the escort of some cavalier hardly more advanced in his education than themselves, rushing along at a heedless and most unwarrantable pace, as if there were no more danger or chance of slipping upon the treacherous wheels beneath them than in a waltz or a quadrille. The smallest obstacle or mischance is sufficient to upset the over-confident pair, and the result is a fall, which is the more disastrous in proportion to the inexperience of the skaters, and their utter ignorance of the important art of falling easily. It is not the absolute beginners who get the bad falls, but the middling performers, who are bold enough to skate fast, but not clever enough to skate well. A mere learner has not the impetus necessary for a dangerous overthrow; and on the other hand, a good skater, though by no means exempt from tumbles, knows how to make them, when inevitable, as little painful as possible. There is one other cause of accident on the rink which ought to be got rid of with all speed. It is the habit of pushing and jostling along at a headlong pace, regardless of the comfort or safety of other people. This rude and rough behaviour is as offensive in a rink as "furious riding" in the Park or in the streets; and if the selfishness and bad taste involved in it are found to triumph over the politeness of those who practise it, very summary steps should be taken by the committees of management to prohibit so great an abuse.

Ladies who intend to skate should be particularly careful, if a choice of rinks is offered them, to select one which is as free as possible from the intrusion of the rough element above alluded to. The most important ques-

tion, next to that of the society which frequents the club or public rink, is that of the floor. Between the different materials used for paving rinks, a battle royal has been waged comparable to that which was fought between the rival pavements for London streets, or the grand railway war of the gauges. Wood, which has been very much used in America, the birthplace of roller-skating, was tried with some success at first in England. But there are many disadvantages in boards, and amongst others, a want of durability, which has caused them, in spite of their superior softness and elasticity, to be very generally discarded in favour of a harder material. Concrete and asphalt are the favourite substances—the former being, perhaps, more suitable, owing to its resistance to all weathers, for outdoor rinks; and the latter preferable where the floor is sheltered from rain and sun. The asphalt has certainly the advantage of superior smoothness, of making less noise, and of being free from the dust which makes a fall upon concrete so doubly disagreeable.

It is not necessary in this short sketch to go into the history of the roller-skate itself. Suffice it to say that the Plimpton patent was taken out in England as early as in 1865, and that at that time skating rinks for artificial skating on wheels had become as common in the United States as they are now in England. It was not till 1874 that this sort of skating was at all publicly taken up in England; but as soon as the fashion once got a footing, it spread like wildfire. In 1875 there were no less than fifty-five different kinds of roller-skates patented, most of which proved to be infringements of Mr. Plimpton's patent, and were accordingly prohibited in England. The principle of all the skates is, however, so nearly alike, that any one who has learnt with one sort can skate with almost equal ease upon any other.

Although almost every lady may be supposed to count amongst her acquaintance some gentlemen skaters, it is quite possible that she may have to take some of her lessons in skating without any guide or instructor. In fact, after the first stages of her education have been safely passed through, if she become a regular attendant and perseveringly practise at the rink, she may reasonably hope to outstrip the greater number of her quondam instructors, whose mornings and afternoons are not usually as much at their disposal as her own. There is much, therefore, to be learnt in the way of hints even from the dry pages of a book. Especially will such hints be valuable as noting what is to be avoided. Faults in skating, as in more serious matters, when once contracted, are most difficult to correct, and the earlier they make their appearance, the more fatal will be the effect on the style of the performer, and her chances of success.

Let all those, therefore, who wish to become good and graceful skaters, decline the assistance of any one, gentleman or lady, whose style is not elegant in appearance. The most unpractised eye will generally be able to detect at a glance the appearance of awkwardness. In learning to skate example is a powerful agent, and the style of the teacher will usually transmit itself to the pupil. Avoid from the first the great blunders that distinguish the ugly skater—the bent knee, the hanging head, the swinging arms, the hurried gait, and slouching attitude, so common at all rinks, and amongst every

description of skater. The first elementary steps towards learning simple and straightforward skating, whether they take a long or a short time, are pretty much of the same in all cases: first, a species of shuffling walk, then a succession of short timid slides, and lastly, some real "strokes," say a yard or so in length, which seem however to be animated by a foolish inclination to bend inwards against the skater's will. In progressing through these preliminary stages, the foot as well as the body should be kept as upright as possible. When the skater has become confident, it will soon become easy to incline the body, and so make the curves more or less abrupt at pleasure.

As long as the weight of the body remains in its usual and most natural position—that is to say, on the inside of the foot which is on the ground—the skate will continue on what is called the "inside edge"—that is to say, it will describe a curve converging inwardly—the right foot inclining always towards the left, and the left, on the other hand, towards the right. Suppose, now, that the weight of the body, instead of retaining thus its normal position, becomes inclined to the *outside* of the skating foot—that is to say, if the right foot be on the ground, the body finds itself leaning over in the direction of the right shoulder—in such a case the skate will begin to describe a curve outwards towards the right; that is to say, it will begin to move upon the *outside edge*. While it does so, the body will, it is true, be *off its balance*: it will be, as it were, falling outwardly towards the right. But a mechanical principle—that of the centrifugal force—will, as long as the foot keeps moving, prevent it from falling; and by the time the course of the stroke is completed, the equilibrium will be found to have been restored. Here is the whole theory of the outside edge—that dreadful problem which is the terror of all aspirants to skating honours. The problem is a stiff one, it must be fairly admitted: it requires nerve, courage, and a perseverance in practice which can afford to laugh at a fall or two. On the other hand, the reward is great; for, the outside edge once thoroughly mastered, there remain few difficulties to harass the ambitious pupil in her path towards the highest achievements of figure skating.

When the outside edge is once learnt, the next step should be a good long practice at the "serpentine"—that is to say, in the art of shifting from inside to outside, and back again. On the roller-skates this is easier than on real ice, and the beginner should soon be able to alter the edge at a moment's notice, and to return to it again.

During the whole of these lessons one of the principal objects, and the most essential to elegant skating, is to keep the foot which is off the ground well behind that which is down. Once allow it to come in front, and the whole grace of the attitude, as well as the strength of the stroke, is irretrievably lost. Not only the "off" foot, but the shoulders and the head, should be kept well back—the eyes never directed towards the floor, but held up, and looking either straight forward, or over the shoulder which is above the skating foot, and therefore the more advanced of the two.

After the outside edge, or, in the case of some beginners, before it, comes backward skating on the inside edge—a lesson only to be learnt by

practice, and presenting no particular difficulty, except that arising from the peculiarity of the movement, this being the only method yet invented of moving backwards at any pace, and from the impossibility, at first, of keeping a look-out ahead. The next lesson is the "Three"—that charming combination which first gives the skater an inkling of what figure skating will be. The common "three" is a sudden change from the outside edge forwards to the inside edge backwards. It is effected instantaneously by a twist of the body and an imperceptible shrug of the shoulders, and the ease with which a turn apparently so abrupt is accomplished is astonishing, even the first time that a skater happens to succeed in it. In first practising the "three," the off-foot should be kept very close to the ice, and put down lightly to steady the body if there is imminent danger of a fall. After a very short probationary period the "three" will be done with confidence, and with all the pleasure resulting from a figure—for *bonâ fide* figure it is called—of such exquisite simplicity and beauty. There are three other simple "threes," viz., inside forwards to outside backwards, inside backwards to outside forwards, and outside backwards to inside forwards. All of these are done by an exact movement of the body, and in all cases the great object is to make the "tails," or second part of the "threes," as long and sweeping as possible.

When the single "threes" are done easily, they may be "doubled" by executing a second "three," or more than one "three," while doing the second part, or "tail," of the first. Any number of turns may thus be added to the first turn, and the names of the figures thus described are "half-doubles," "double threes," "half-triples," "triple threes," and so on, in proportion to the number of turns. Suppose, lastly, the skater to interpose between either or any of these turns a serpentine or change of edge. This will enable her to change from any edge, forwards or backwards, to any other. It is this shifting from edge to edge, and from turn to turn, that constitutes figure skating; and when a number of persons combine to execute such figures in unison and in time, revolving round a common centre, and crossing one another at that common centre in a regular order, we have a concerted figure, such as is performed by the principal skating clubs in London and elsewhere. There can be little doubt, although these concerted figures have not yet been seen on the modern rinks, that they will in due time be introduced, and performed with as great success as they are now on the ice in Regent's Park. But for a description of these intricate and difficult though beautiful evolutions, we must refer to the more lengthy works on skating, and notably to the excellent handbook edited by two accomplished and justly popular members of the London Skating Club.\* It would be a complete mistake to suppose that gentlemen need have the monopoly of these figures, the *summum bonum* of a skater's ambition. Ladies are quite capable of learning even the most difficult of them, and,

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\* "A System of Figure Skating," by H. E. Vandervell and T. M. Witham. Published by Horace Cox, 346 Strand. See also previous article by the Rev. J. G. Wood

with the ample time they often have for practice, should at any rate be able to take their part in the simpler ones.

Attempts are often made, even by very indifferent performers, at dancing on wheel-skates. They are not usually of a very successful order, or very graceful in appearance. It is, however, possible to make a pretty and elegant dance, the partners holding one another by both hands, face to face, and performing a series of threes, in which one partner is going backwards while the other goes forwards, the turns being made exactly at the same moment, as well as the change from one foot to the other. Only good skaters can hope to attain success, and that after a good deal more practice than is required to master the mysteries of *trois temps* in a ball-room.

In conclusion, two or three hints for the benefit of skaters in general, whether beginners or otherwise. In the matter of dress, it is absolutely essential while wearing skates to discard the high-heeled boots, however favourite an extravagance they may be deemed outside the rink. To attempt skating in high heels is not only absurd, but highly dangerous, and the best skaters find that the less heel their boots have the easier it is to get on. It is prudent also to avoid wearing anything in the shape of an ornament which could wound the wearer in case of a fall, some very odd but most annoying accidents having been caused by bracelets, girdles, and even hair ornaments of great size and weight. A dress with narrow skirts is rather a good than a bad thing, as it prevents the wearer from the ugly sprawling actions in which some indulge, and compels her to keep her feet in the proper place—that is, always near to one another. As regards the attitude, which is the real criterion of a good or a bad skater, it should be easy, but erect and firm. The straightening of the knee is the great difficulty, but at the same time the great test, of a good skater, and no one should once allow herself to fall into the habit of skating with the knee-joint bent. Add to this list of things to be avoided the maxim that patience and perseverance will overcome all obstacles, and it will be found that figures which at first appear wholly impossible become easy in time. The first steps are the hardest, and each victory over a new problem will increase in an unexpected degree the confidence and ambition of the persevering skater.

## A LADY'S RIDING.

This accomplishment should be acquired, if possible, very young. The rider's courage and skill are sure to be greater if she begins to ride as a child on a little pony, than if she is taught later in life. But let the accomplishment be acquired whenever it can, as no exercise tends more to health and grace or preserves youth longer than riding. It is simply impossible to teach riding by a book; but some hints may be given here, which will probably facilitate the progress of the learner. We shall begin by describing the manner in which a lady mounts.

The horse is held by the groom or coachman. The lady (who should

stand close to the horse) places her left foot in the hand of the groom or gentleman who assists her to mount, rests her right hand on the saddle, and springs (impelled by his lifting her) into her seat. The right leg is put over the pommel nearest to her, and the left leg *under* the third or lowest pommel. The old-fashioned saddles with only two pommels are seldom, if ever, used. No one ever thinks of buying a new saddle with only two pommels, as the third one is a great help—especially out hunting—and gives firmness to the seat. After having once ridden with three pommels, one would never ride with two, unless no other saddle could be had. The left foot is simply slipped into the stirrup, and the heel *slightly* kept down, but not very much; as nearly level as is comfortable. It is a great point before starting to have the habit well arranged, and tightly pulled down, after putting the leg over the pommel. Nothing looks worse than to see a lady's habit not tightly pulled down under her. The reins are held in the left hand: the curb-rein *over* the second and *under* the little finger; and one rein of the snaffle on *each* side of the third finger. The ends of *both* reins should be let fall over the first finger, and should be tightly held down by the thumb. When only one rein is required, it should be held over the second and under the little finger. A lady should ride on the curb when cantering or trotting, and on the snaffle when walking. The reins should be held loosely, yet firmly, when walking.

She should sit as square in her saddle as possible, firmly and gracefully; her shoulders well thrown back, her hands down, and her elbows close to her sides. The whip is held in the right hand. When a horse is walking, she must tighten the reins, and give him a slight touch with her heel, to make him trot; and to canter, she must turn his head a little to the left, to make the horse start with the *right* leg; she must also touch him with her heel.

In trotting, a lady must rise slightly from her saddle *with* her horse; but in cantering, she must sit as closely as possible to her saddle, and avoid all ungraceful jerkings up and down: this is very important. In turning her horse, she must gently turn her hand to the right or the left, as is required. A well-broken horse (and a lady should never ride anything else) will always answer to the slightest movement of the reins. She should take care not to jerk the horse's mouth: it spoils the best mouth, and makes a horse irritable, and also looks very bad.

To stop her horse, she must tighten her reins.

The principal things to be remembered in the hunting-field is (if she wants the horse to jump) to take him *straight* at the fence or hedge at a short canter, give him his head (she must never then pull the reins back), sit firmly and closely in the saddle, and lean well back as he finishes the leap.

If she *wants* to pass anything, she must go to her right; if she *meets* anything, she must go to her left, and let *it* pass on her right. As the old proverb says—

"If you go to the right, you will always go wrong;  
If you go to the left, you will always go right."

On dismounting, the horse must be held by some one, the foot slipped



out of the stirrup, the leg taken off the pommel, and, sitting round sideways, she must spring lightly to the ground with the assistance of the groom, or gentleman, if preferred; but it is not necessary to have any one to assist her to dismount.

A lady's dress on horseback cannot be too plain: a well-fitting black or dark blue riding-habit made without any trimming, only buttoned down the front; the usual riding hat; and black veil, if desired. No ornaments or ribbons on any account should be worn on horseback. Linen collar and cuffs fastened with small gold stud or brooch, and dogskin or any nice kid gloves will complete the dress.

We conclude our article with a few words on the choice of the lady's horse.

### THE LADY'S HORSE.

A perfect lady's horse is of all descriptions the most difficult to find; so many good qualities, which, though desirable in all riding horses, may be overlooked in those for men, are here absolutely essential. Fine temper and courage, a light level mouth, and fine manners, are indispensable. He should be from 15 hands to 15 hands 3 in. high, with a good head and neck, fine oblique shoulders, rather long in the body, with a good back and loin, deep strong quarters, firm sound legs and feet. If the hind legs are rather bent, so much the better; he will get them more under him, and consequently his



paces will be easier—horses with straight hind legs invariably pitching most unpleasantly in the canter, which must be easy and elegant. As few ladies ride more than from ten to eleven stone, including a nineteen or twenty-pound saddle, and ease and lightness in action are indispensable, the lady's horse should be very nearly thorough-bred, if not quite so. He must walk well and freely, step lightly but sharply in the trot, with a rather long easy canter. He must be high-couraged and free, but at the same time docile and temperate. A slow, lazy horse is as objectionable and disagreeable to ride as a hot, irritable one. The latter will sometimes go quietly and temperately in the hands of a lady, though irritable and fidgety when ridden by men, owing to the easier, lighter pull on their mouths. From the position of the lady's seat and from the great length and incumbrance of the habit, it follows they cannot have the same power and control over the horse that men have, and accidents to them are more likely to be attended with dangerous results; hence greater care is necessary in selecting a horse for their use, free from all tricks, nervousness, and vice.

Many are called good ladies' horses that have no other recommendation than their being very quiet, which with very many will cover a multitude of faults.

A few years since ladies rode no pace but the walk and canter, but lately the trot has become a favourite and fashionable pace; consequently a safe, sharp, easy trot is now essential in all horses to carry a lady.

The lady's hunter differs in some respects from the riding horse for the road or park; he may be less showy and stronger. He must be eight or nine years old, have been well and regularly ridden to hounds for at least two or three seasons, and thoroughly understand his business; not less than 15 hands 2 in. or more than 16 hands high, well above the weight he has to carry, well-bred and fast, but thoroughly quiet and temperate among other horses, and at his fences, which he should take freely and cleverly, go well into the bridle without pulling, and turn readily with a motion of the hand.

A hot, irritable, fretful brute, or one with a weak loose neck, is uncomfortable enough for a man to ride, but it is absolutely dangerous to allow any lady to ride such a one on the road—to say nothing of riding him to hounds—however good he may be represented to be.

The best colours for ladies' horses are bay, brown, dark chestnut, or black. There is an old saying that "A good horse cannot be a bad colour;" and though no purchaser should decline to buy one that is likely to suit her on account of colour, those I have named are to be preferred.

The price of horses differs so greatly, and depends so much on their make, style, and qualifications, that it is difficult to name an average one; but a good lady's horse, either for the road or the field, is always worth from £100 to £150.

## DRIVING.

In riding, it is necessary to have a good hand, seat, and head; in driving hand and head are alone needed, the requisite seat being easily acquired.

We will briefly refer to the various kinds of driving which a lady generally undertakes.

1st, a single horse; 2nd, a pair of ponies.

Driving a single horse is the most simple of the two named. We will suppose we have a tolerably fresh horse in some vehicle, and are going for a drive, and we can then point out the various items to which attention should be particularly directed.

It may be assumed that the groom or coachman has placed the harness on correctly, and is standing at the horse's head. The driver should see that the reins are placed handy, so that they may be grasped the instant she is seated in the carriage. Although not likely, yet it is still possible, that the horse's head may be quitted by the groom sooner than it ought—and if the reins are out of reach, an accident is sure to happen if the horse start off suddenly, as he is tolerably sure to do.

A well-trained high-spirited horse, on finding his head released, will usually move forward at once; but he should always be restrained from that very bad habit of starting off immediately he hears any one enter the vehicle or feels their weight on the shafts. This habit is commonly engendered by striking the horse with a whip immediately on entering a vehicle, and the animal endeavours to avoid this unnecessary punishment by starting off at once.

In driving, the reins should be firmly held in the left hand; the knuckles and back of the hands turned to the left. The left, or near-rein, should be grasped between the first and second, or second and third fingers, whilst the right, or off-rein, should be grasped between the first finger and thumb.

By practice and judgment the driver can soon find the correct length at which to hold the reins. They should be held short enough to enable the driver to pull up the horses instantly without shortening the reins, and not so short as to give an awkward appearance by an extended hand and arm.

For turning the horse to the right or left, the right hand may be employed, it being by the *pull* of the rein alone that a horse can be turned when driving.

The driver's seat should be high, so that a firm purchase is obtained, and a steady pull against the horse.

In driving, all sudden stoppages or starts-off should be avoided. A horse should be gradually checked in his pace when he is about to be stopped, otherwise those in the vehicle are unpleasantly jerked from or in their seats.

The same rule of the road holds good in driving as in riding: all vehicles that face us are passed on our right-hand side; but when we overtake vehicles going the same way as ourselves, we pass them so that they are on our left hand. The only exception to this rule is when two horses are met—one of which is ridden, the other led.

Accidents happen in driving most commonly from horses running away, from collisions, or from some part of the harness or carriage giving way.

Horses which are too fresh and high-spirited *may* run away; but with a powerful bit, strong reins, and a strong arm or steady hand, it is not likely to occur. Should such an event happen, it is not only the safest proceeding, but the one which every one should adopt—to sit still, and use the utmost

endeavour to stop the horses. This may often be accomplished by a succession of steady pulls at them; or, if this fail, they may be kept from collision with other vehicles, and probably tired out, by being breasted at some steep hill. To throw oneself out of a carriage or a vehicle usually results in death or a broken limb, and is, after all, only the worst that is likely to happen.

Timid people sometimes cast themselves over a precipice to avoid danger; and those similarly constituted not unfrequently throw themselves out of a carriage with a similar result.

Most of the remarks relative to driving a single horse are applicable to driving a pair of ponies. There is, however, the necessity when driving them to be watchful that each fairly does its work. Unless this is done, we should soon find that one was sweating and fatigued, whilst the other had scarcely turned a hair. Thus each pony ought to be kept well up to the collar, and should keep his traces taut. By watching the traces, we can soon tell when a horse is shirking his work, and he should then be reminded by the whip of his laziness.

In turning corners or passing a road, care must be taken that other vehicles are not suddenly encountered; it is in such places that accidents happen.

There are two simple expedients in case of accidents, which should always be remembered at the proper time, and acted on at once. First, if a horse is kicking, or has his leg over a trace, or is otherwise mutinous, either lift one of his fore legs off the ground yourself or get some one else to do it. A horse cannot kick on three legs.

Secondly, if a horse fall, get a strong heavy man to at once keep its head down, until the horse is sufficiently freed from shafts or harness to arise without breaking anything: for as long as a horse's head is kept close to the ground, he cannot get up.

## YOUNG LADIES' PASTIMES.

Pleasure, in its best sense of refreshment and gladdening emotion, is an absolute necessary of life to us all, little and big. It is worth while to consider, then, if we can get at it easily. Artificial pleasures, such as the sight of fine pictures, noble buildings, remarkable scenes, or the hearing of exquisite music, do not fall to our lot very often; it is better not to depend wholly on them. But Nature is very lavish to us all: her three great gifts—the sea, the sky, the earth—are the common heritage of every man, and we should know how to appreciate them properly.

I say the sea, because I am writing to English girls. In continental countries stretched along interminable flat plains, or barred up by huge mountain walls, many people live and die without seeing the broad bosom of ocean, or hearing his deep solemn boom. But we in our little wave-washed islands are almost all sea folk. If we do not live beside the shingles or the sands, we have either gone or are going there for health or for pleasure; perhaps have made little coasting trips, or crossed the channels that sepa-

rate us from each other, and from our foreign neighbours. So the sea may be considered the common property of English people, and Wordsworth knew that it was a daily event to them

"To see the children sport upon the shore,  
And hear the mighty waters rolling evermore."

What wealth of shells and odd creatures one can gather on the sands!—star-fish, purple and red and grey anemones, with their flower-like feelers, comical crabs, too tiny to pinch us, stinging jelly-fish so innocent in appearance. What wonderful weeds and corallines! How interesting it is to watch the terns with their pretty striped plumage, the gulls and mews skimming along the billow-tops, the sand pipers, and all their kith and kin!

And how strange to think of that blue steely brightness flashing far away without a break to the Indies and Americas of the great earth ball, rolling round and round in space, holding on, as it were, all that mass of moving water, so that none of it is spilled out into the universe!

What a curious law that is of "gravity" as we call it, which makes the globe tumble over and over in her course, carrying with her, not only her solid ground, but her fluid water, and her forty or fifty miles' height of atmosphere that flies after her like the gauzy folds of a lady's dress! And the sky is even more our own than the sea, for wherever we go there it hangs, and is always making a new picture to please us.

Even in our rainy island, where, the foreigners say, we have no sunshine worth mentioning, even here the skies are full of beauty.

The blue air on which Southerners pride themselves is caused by reflection of the sun's rays; and the more transparent the atmosphere the bluer is the sky, and also the air between us and other objects. In Italy I have felt as if I could rub off the blue bloom from the hills as I could from a peach or plum—it was like something palpable; yet, instead of obscuring objects, it seemed to define them more distinctly. From Capri I have seen the peak of Mondragone, a hundred miles off, and the houses in Naples twenty-two miles away, as clearly as if close at hand.

This transparency intensifies all colouring as well as sharpens all outlines. One can hardly say one has known what purples and crimsons and gold tints can be, unless one has seen a tropical sunset. But we need not envy our torrid friends; the soft haze of our climate gives great delicacy to our scenery, and the abundant moisture of our air builds up for us fairy splendours in the clouds.

Who has not watched on a quiet evening in autumn, as magic hills and valleys and lakes rose up before him in the west, and enchanted castles toppled over in the twilight into a golden sea of light? Let us try and classify those lovely clouds, and see a little what they really mean.

First comes the Cirrus, in English called "mare's tail." You know them, those long, snow-white plumes whisking gaily across the clear blue ether as if brushing away invisible flies. They look sometimes like moss filaments in agate on a gigantic scale, and are a sign of wind. If their streams slant upwards, rain is near; but if the handle of the plume, or what we may call the root of the mare's tail, be uppermost and the streamers point downwards,

fair weather will ensue. These airy cirrhi dance about very high, sometimes four or five miles above our heads, yet we can see every thread distinctly.

Next comes Cumulus, very common in England—a mountainous range or rampart extending upwards along the horizon, its base upon the earth. The summit of mountain or rampart is jagged and notched with mimic rocks, and turrets and machicolations all along its edges.

A cumulus can be enormous. Professor J. Forbes standing once on the top of the Jungfrau Alp saw one of these vapoury giants, whose foot was in the valley below, and whose head reared 2,000 feet above the mountain-top where he stood, so that he reckoned this cumulus must be 10,000 feet, or two miles tall. Pretty well for a creature made of watery vapour!

Huge dense things they are, and live down near about the earth, and move along with the lower current of its air; they cannot leap and spring about like the airy cirrhi in the upper ether. You can tell if they are not meaning mischief by the well-cut, clear edges of their tops; but when they do intend to soak you, they melt gradually and turn fluffy, like cotton seeds about to burst, then gradually they grow bigger and bigger, and hang lower and lower, till down comes the rain!

The mackerel sky which towards evening looks as if heaven's pavement were all of inlaid mother-o'-pearl, is a mixture of cirrhi and cumuli—portending wind, but not often storm.

The third great class of clouds is Stratus—long level sheets spreading upwards from valleys towards evening. Stratus is the nightingale of the clouds; it is up and lively when all others rest. It begins to change at day-dawn, rises and breaks into soft cumuli, and disappears, leaving serene bright weather as its legacy to men. Stratified clouds are lovely, stretching, as they often do, right across the sky under the level of the other kinds, and barring heaven like a silken banner with their showy stripes and ribbons of silver.

Nimbus or Rain-cloud can be beautiful (dark and gloomy as it often is) when the sun breaks slanting through its grey, and the beams run down the descending shower to earth. Turner loves to paint such an effect—indeed, all painters reproduce it at times. There is something in it of a heavenly messenger to earth. In sacred pictures saints and martyrs are represented with a nimbus of light playing round their heads.

A halo round the moon is a luminous ring of vapoury atmosphere encircling her. It is a bad sign, much hated by sailors. So is that curious appearance, the “young moon in the old moon's arms,” when the outline of the full moon can be seen dimly outside of the thin crescent.

In frosty weather how crystallized and crackling the stars look, winking keenly, and the moon as sharp edged as if her sickle blade would draw blood. In tropical skies the stars are soft as well as brilliant, and hang round and detached from the blue behind, whereas here they look as if stuck fast upon the sky. The moon's rays are yellower in the tropics, and her light so intense it seems to heat the air. Certainly its rays are harmful to sleepers; stories are told of moon blindness and moon paralysis caused by sleeping in its beams.

As for old Mother Earth, who can praise her properly, or do justice to her energy and her good taste?

We do all we can to mar her dear old visage, backing her face with quarries and mines; seaming it with iron wrinkles of railways; building up huge excrescences of hideous factories, and dull towns, and snug villas; blighting all her pretty greenery with coal smoke, and choking down her flower scents with foul gases and tannery smells. Yet, let us leave off our meddling for a moment, and quick! she sets to work, covering up the hideous gashes and scars with creepers and blossoms, till decay and ruin look lovelier than our smartest squares and terraces. She sends little pert sparrows into the stupid streets to enliven the Londoners, and invites swallows to build pendulous nests in the gas-pipes, and if ever she can find a crevice in the flags of the pavements, up goes a little green shoot as a sign of her vitality.

Then, by the dusty road-sides, is she ever tired of thrusting golden furzes and red dog roses, and briony and vetch, and woody nightshade into the middle of our stiff-clipped hedges? She drops starry stitchwort into the ditches, and dyes their banks blue with the little speedwell, and even stagnant pools she covers with a grass-green cloak, or she scatters iridescent colours over the surface.

But if you want to see Mother Earth at her busiest, go out on a broad moorland, and count if you can all the divers kinds of heather, bell heath, and ling, wax-hued, purple, white, and pink; count the mosses—cup moss, club moss, stag-horn moss, red moss, golden moss; count the lichens—green lichen, silver lichen, yellow lichen, brown lichen, grey-bearded lichen fluttering on larch stems, close blotches of lichen staining rocks and granite boulders; tell me the tiny tormentillas in the crevices, the blue bells waving in the tussocks of reedy grass, the cannach or bog flax fluttering its white kerchief on the edge of the morass, the gale or bog myrtle scenting the fresh breeze; bring me back if you can an inventory of all the plants you can gather in a half-hour's stroll!

Clay soils are not favourable to flowers or to pedestrians. Much culture will rear roses and rhododendrons, but natural growth is scant. Still you can see arums in the spring—lords and ladies as country folks call them—with their pretty green sheath and crimson lance inside, and in autumn their clusters of transparent red berries like a cornelian brooch; campions also, and the bracken fern, with its wild unmanageable fronds like head-strong overgrown lads that *will* go their own way; and sometimes purple hyacinths, and aromatic Herb Robert. But, on the whole, clay soils are only intended for brickmakers.

Sandy sea shores have their own interesting plants—sea pinks, stone-crops, earth-stars (which abound in the sandy Links of Carnoustie, in Forfarshire), and that hard wispy grass called *bent*, invaluable for binding the loose shifting sands, and hindering them from drifting inland to choke the pasturage.

Chalk soil is prolific of pretty flowers and fragrant herbs, and what can be more delightful than the short thymy grass of the downs? Indeed, it is worth your while to learn a little of geology, if only to comprehend the *bones*

of the country where you happen to live. You will thus ascertain not only its hard strong framework, but the vegetation that belongs to each kind of stone. Chalk, for instance, gives rolling downs and undulating pastures, with short sweet herbage and tinkling tiny wells. Granite breaks out in gaunt grim cliffs and rocks, cleft by abrupt ravines, pierced by brawling torrents, stone bedded, and studded with dwarf alders, birches, ferny nest- and knolls, wild morasses, and purple moorland. Freestone and its congeners and red sandstone are all very varied in their scenery, but I can only refer now to the Spey Side, in Morayshire, where through the woods and waters the red cliffs flush and glow. Enough surely has been said to point out how much beauty lies around us, if we will only look for it. Not only

“The common air, the opening skies,”

ought to be reminders of Paradise to us, but every little bird that flies, or insect that creeps, or tint that shimmers in flower or cloud, ought to be to us signs and proofs of our Great Father's love, who has stocked this fair earth so full of beauty that, even in spite of our mismanagement and our follies, we cannot turn from the right side to the left without seeing something that recalls its Maker's wisdom and glory.



### THE YOUNG LADY'S FLOWER GARDEN.

The flower garden, in all its various forms, can scarcely fail to be the delight, the occupation, the pride, the glory of the English girl. It is work for the idle and recreation for the busy. Whichever our station renders desirable in either shape we may get among flowers, trees, and shrubs; and

there all the good qualities so paramount in the women of England find scope. A well-cared-for garden displays—and displays to good advantage too—the love of home, domestic taste, a wish to please, industry, neatness, taste, and all the sweet household virtues that create home wherever good women rule, and that make Englishmen, when blessed with such as wives or relatives, so fond of it and of them. To the little ones of a family also the value of the garden has no limit: give a little boy or a little girl a bit of ground to call his own or her own, and encourage the young owner to cultivate it well, and it may be the nursery of all the good qualities that I have named, and many more.

One great merit in horticulture is, that it confines itself to no rank, and that it may form the amusement or the pursuit alike of great and small, rich and poor; only, the kind of garden we choose and what we do with it must depend on those extraneous circumstances to which we all have to submit.

As our young readers will probably have only a certain portion of the garden appropriated to them, we shall confine our instructions chiefly to the management of flowers and flower beds; the latter being, probably, their chief care.

In the diagram annexed they are offered a pretty mode of laying out a small piece of ground in beds.

Each bed must be filled and made gay with the roots of one flower, or else, with roots of one flower completely to cover the centre, and with bands of another flower, handsome either in bloom or in foliage, to surround it. When all the beds can be made gay with bloom and healthy foliage at the same time, it is very effective, though stiff and unlike the gaiety that Nature shows us. With it, to get the beds all in prime blooming condition at one time, and to keep them so, is an imperative necessity for the beauty of the garden. Constant attention must therefore be bestowed on it—such attention as ladies, with leisure at command, can so well give. In addition to not allowing a weed with a dozen leaves to hold its unwelcome place, all the flowers as they wither should be cut off; to keep the plants long in bloom, all shoots inclined to get too rampant in growth should be stopped; those too backward in growth encouraged with a little liquid manure, and nothing be allowed to run a hair's breadth out of order. In planting this kind of flower garden it should be made a study to select flowers which will be in beauty at the same time, and, as far as can be managed, such as will remain in beauty for about equal duration.

The ribbon borders are on the same principle of massing the colours, the flowers being arranged in close bushy rows, each row contrasting with its neighbours in colour of flower and foliage.

In the plan given, an effort is made to shape the beds so as to avoid very sharp angles, narrow strips, and all shapes which it would be very difficult to maintain, and in which it would be impossible to keep the flowers from straying over the edge.

The common yellow *Calceolaria* gives a capital mass of bright yellow. Take cuttings in autumn, keep them indoors through the winter, harden them gradually, and plant them out in May, in a rich light soil. *Fuchsias*



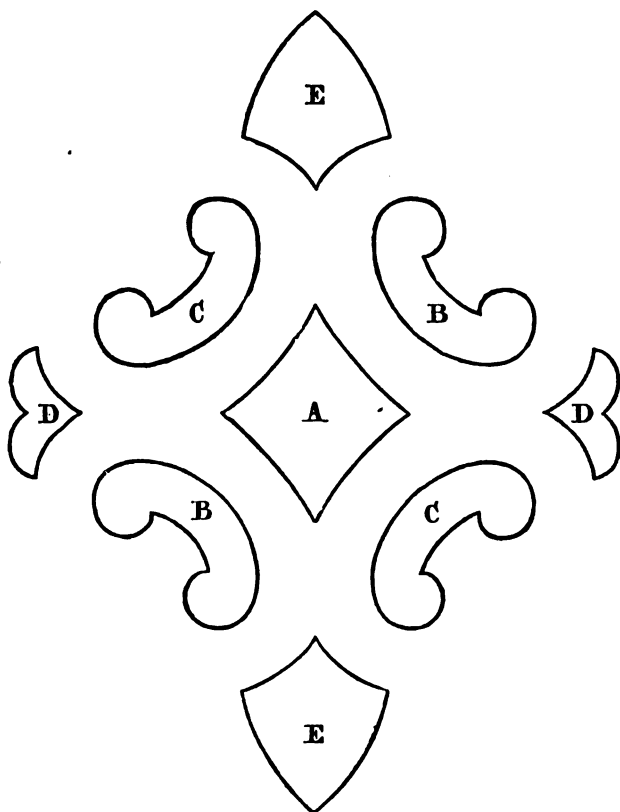


DIAGRAM.

- A. Pampas Grass, pale lavender Phlox round.
- B. Broad-leaved Myrtle and scarlet Salvia mixed.
- C. Broad-leaved Myrtle and blue Salvia mixed.
- D. Purple Petunia.
- E. White Foxglove, scarlet Geranium round.

of free growth make *recherché* beds, with the tallest plants in the centre, descending gradually to quite low plants round the edge of the bed.

Anemones, Ranunculuses, Hyacinths, Pansies, Tulips, &c., make beautiful beds. The Verbenas are first-rate bedding plants, and offer valuable masses of flower in all shades of crimson, rose, scarlet, purple, violet, and mauve,

besides a good white. Purple King Verbena is in constant requisition. Verbenas flower in the summer, and keep gay a long while. Petunias are especially good as bedding plants, because the flowers are large and conspicuous, and full and varied in colour, showing a good mass of bloom at one time. They bloom from June onwards, and keep in flower for months. All plants of a creeping habit, which throw out abundant masses of showy bloom, are good for bedding; all upstanding flowers used for forming beds should be of low bushy growth, and such as flower so abundantly as to show the whole plant a mass of bloom when the flower comes out.

The pegging down, so useful in getting a bed covered with foliage and flower, is done with twigs cut just below where there is a fork. Cut one side of the fork short, and leave the other a few inches long: the long side is pushed into the earth, and the shorter bit fixes the stem to be pegged down.

The plants with foliage of peculiar colour form an important feature in gardens of this kind, and have the merit of filling a void, in maintaining a pretty general appearance at any time that accidental disarrangement may happen to those the beauty of which depends on the flower. Among plants of beautifully varied silvery foliage we have the variegated Coltsfoot and *Cineraria maritima* before mentioned. *Cerastium Biebersteini* and *Cerastium tomentosum* have a low habit of growth, and white flowers. They are easily propagated by division of the root in spring, and will grow in any light moderately rich soil. For taller silvery foliaged plants we have the *Salvia argentea*, 3 feet high, bearing yellow flowers in June; the *Stachys lanata*, 2 feet high; the *Arctotis grandiflora argentea*, about the same height, and requiring a mild sheltered situation, and a place indoors for winter; the *Agathæa cælestis variegata*, the same height, and also delicate, with beautiful blue flowers; the *Centaurea argentea*, *Centaurea candidissima*, and *Centaurea gymnocarpa*. The *Alyssum variegatum* makes a nice showy silvery edge to a bed, as does also the variegated Mint.

There is a peculiar beauty and distinctness in the dark-foliaged plants, on account of which their value in assisting the variety of bedding plants should not be overlooked. The *Perilla Nankinensis* makes a capital mixture in a bed of bright-coloured flowers: threepenny packets of the seed can be bought, and reared without difficulty. The *Oxalis tropæoloides* is a charming half-hardy annual from the Cape of Good Hope, growing close to the ground, and with fine dark bronze foliage. A plant recently introduced, the *Iresine herbatifolia*, will also make a splendid bedding plant. The foliage is beautifully ornamental—dark crimson leaves, with ribs and stems of carmine. It is readily propagated, and only requires to be housed for the winter. Of all the dark-foliaged plants, perhaps none are more beautiful or easy of culture than the *Atriplex hortensis rubra*, or garden Orach, with its beautiful crimson foliage. A packet of seed may be bought for a few pence, and the plants are reared without difficulty.

No less handsome and valuable for beauty of foliage are the tricoloured Horseshoe Geraniums, Mrs. Pollock, and Sunset, every leaf of which is a gay mixture of green, bright bronze, red, crimson, and golden yellow. Sunset

has a compact dwarf bushy growth. The variegated geraniums, with white and golden yellow margins to the leaves, are showy and gay-looking.

The best and freest-blooming scarlet, pink, salmon, and white geraniums are most useful for bedding.

The Lobelias are general favourites, from their thick low growth and the abundance and intense colour of the bloom. They are especially good for outer rims to beds of geraniums and other full warm-coloured flowers. In the general flower garden they look pretty in clumps, and will also grow on rockwork, and they have the great merit of remaining all the summer months in bloom. *Lobelia speciosa* is the finest, from the intenseness of its blue, with a clear white spot, and the deep green of its foliage. *Lobelia gracilis*, in its several varieties, is best for rockwork, pots, or hanging baskets. They require a light rich soil. Plants raised from seed in autumn, and kept indoors for the winter, will be ready for planting out when frost is over in the spring. The seed is so minute that it must be very slightly covered with earth.

The Nasturtiums, with their peculiarly elegant, curious, and brilliant-coloured abundant flowers, have most deservedly grown into great favour. Allowed to run on the ground, if of the tall kinds, and planted over the beds if dwarfs, they are good bedding plants. Sow the seed under glass in April, protect the young plants from frost, and plant them out when the frosts are over. *Tropaeolum lobbianum elegans*, the Crystal Palace nasturtium, is of a good habit of growth for bedding. The double-flowered kinds are curious and pretty. All plants of the family delight in light rich earth, and flower from early in summer till frost interferes with their gay beauty.

The Cuphea is admired as a bedding plant, remaining in flower for several months. The *Cuphea eminens* is especially good for the purpose, from its graceful branching habit and immense number of long tubular scarlet and yellow flowers. The *Cuphea platycentra*, the flowers of which are a mixture of scarlet, white, and purple, is also a good plant for beds. The seed should be sown in a hotbed in the spring, and the young plants hardened off by the end of May. They will do for planting out the same season. They may also be grown from cuttings taken in the spring. They require a dry rich soil.

The Ageratum, of which there are many varieties, keeps many months in bloom, and the greyish blue of its flowers contrasts very well with the more brilliant hues of many others. They are annuals, and grow well in any good garden soil. Cuttings may be taken in autumn, and kept indoors through the winter, but it is better to grow the plants from seed, which should be sown on a hotbed in February, pricked out, and planted out in the beds in May. They begin to flower in June or July, and flower for a long time.

The *Gazanea elegans*, with its leaves of deep shining green above, and cottony white beneath, and profusion of large brilliant orange flowers, with yellow and dark chocolate centre, studded with clear white, like pearls, has but one fault—it shuts up close whenever the sun is not shining on it. It grows quite close to the ground, keeps long in flower, and will grow in any

good garden soil. It is propagated by cuttings, which may be taken at the sides of the plant in August, more sparingly in the spring, and raised under a hand-glass, in sandy soil. From its low growth and brilliant flowers, it would make a gorgeous border for a centre of more sober colour. The *Gazanea splendens* is, I believe, newer.

The Heliotrope, from its delicious fragrance and the sweet unobtrusive grey of its pretty flowers, should find a place in every flower garden, and the plants may be kept to the desired form by pegging down. It looks nice when contrasted with gayer colours. It grows in a rich light soil, and the plants must be housed in winter, and may be planted out in May. Those with the very dark flowers are handsome. It is increased by cuttings struck with a little heat in spring, or under a hand-glass in autumn.

The Salvias are quite first-rate, rather tall bedding plants. Either *Salvia splendens* or *Salvia patens*, mingled with the rich green of the broad-leaved myrtle, forms beds something very near perfection. *Salvia splendens* has fine large scarlet flowers. *Salvia patens* is the brightest and purest of all blue-flowered plants. *Salvia splendens compacta* is said to be the finest salvia grown, and is literally covered with bloom, and grows only a foot and a half high; and *Salvia coccinea* is another universal favourite, also bearing scarlet flowers. The salvias want a light, very rich soil, and are propagated by cuttings inserted firmly in the ground in autumn or spring. They bloom in summer, and keep in beauty a long time.

African and French Marigolds, *Tagetes erecta* and *T. patula*, also *T. lucida* and *T. pumila*, are all bright coloured, and useful for beds where plants of their colour and growth happen to be wanted. Seed should be sown in a hotbed in April, and planted out in the middle of May.

Those half-hardy annuals, the Zinnias, are good for beds, on account of their abundance of brilliant flowers of all colours: carnation, crimson, orange, purple, rose, scarlet, yellow, and white, and almost all the colours, may be had in the double-flowering kind, which is very handsome. Messrs. Carter and Co. sell sixpenny packets of seed, single or double (including all the colours), which should be sown in a hotbed in April, afterwards hardened, and planted out when there is no more danger of cold. They require a good rich loamy soil. They will often come fine if sown under a hand-glass late in April, and protected at night. They flower from Midsummer to Michaelmas.

The Saponaria has several varieties, none more than half a foot high, remaining in flower from June almost to November. Its masses of minute rose-coloured blossoms are pretty, and there is one of a pure white. Most of them are hardy annuals; the seed should be sown in the open ground in April. They thrive in sandy loam, with a little peat or decayed vegetable earth. *Saponaria ocyroides* is a perennial, which may be propagated by division of the root, or cuttings of the points of the shoots. It is of a trailing habit, and is good for knolls or rockwork.

The Cyclamen is a charming flower with which to fill a bed; its drooping delicate flowers and low habit of growth are very pretty, but it does not remain very long in bloom. The root, being a solid corm, will not divide,

so young plants must be grown from seed. Gather the seed as soon as it is ripe, dry it slowly, and sow it in February, in a mixture of peat, loam, and sand. Cover the seed with scarcely a quarter of an inch of earth, and sow it far apart, because the young plants should not be disturbed for a long time. When they are a year old they may be potted singly, re-potted in April, and kept in a gentle heat, to increase the size of the bulbs. Many of the cyclamens will grow out of doors in a warm situation and good compost, but the bed or border should be well drained, and a covering of tan or coal ashes should be laid over the roots in autumn, and left until the weather gets warm. The bulbs may be taken up and replanted in October, or they may be left in for two years. Slugs and wireworms are very destructive to them. Most of them flower in the spring, but a few early in autumn.

Cyclamens are very pretty in pots. They should be planted in autumn, have little water until the flower is formed, and after that plenty. They may be kept in a frame until they flower, and then brought into the greenhouse or room. The Persian cyclamen is a greenhouse plant, and is sweet scented.

Several of the Larkspurs are good for bedding, especially where tall groups are wanted. *Delphinium formosum* and *D. Hendersoni* are hardy perennials, growing rather tall, producing fine blue and white flowers the first year, provided the seed be sown early. *Delphinium grandiflorum caelestinum* is a handsome variety, growing not more than 2 feet high, and producing flowers of a splendid blue. They may be sown in sandy loam, in the open ground, and will keep in bloom from June or July for several months.

Where a mass of brilliant yellow is wanted, the *Echeoltzia* may come in conveniently, but in a tolerably warm place, with light earth, care must be taken that it does not become an encroaching weed. In any place where it has grown, and which it likes, it is only necessary to watch for the young plants to come up, when a bed or large clump of it is wanted, and remove them with so large a ball of earth that the roots are not disturbed. It grows near the ground, and keeps in full flower from Midsummer to August. The white are delicate, but poor compared with those of a full yellow and orange.

The Lantanas are very nice bedding plants, growing from 1 to 2 feet high, and producing their pretty compact bunches of flowers of various colours from June to September. Increase by taking cuttings when growth commences in the spring, about 2 inches long, close to the old wood. They grow in fibry peat and loam, flower in summer, and keep in flower many months. If they are grown from seed, the plants must be raised in a hotbed.

The Leptosiphon is a very pretty hardy annual, easy of cultivation, growing in any good garden soil. The different sorts are from half a foot to a foot high, and keep in flower from June to October. The seed may be sown out of doors in March. *Leptosiphon densiflorus albus* is valuable from the purity of its white, producing masses of bloom that are very telling in a bed. There are other varieties with lilac, orange, purple, and yellow flowers.

The pretty little *Nemophila* is very nice for borders, from its low bushy growth and abundance of bloom, keeping in flower from June for many months. It will grow very readily from seed in any garden soil. It is in almost all colours.

*Portulacas* are beautiful, free-blooming, half-hardy annuals of almost all bright colours, of a low habit of growth, and keeping in flower from Midsummer to Michaelmas. The seed should be sown in a compost of sandy peat, leaf mould, and burned earth. When the plants are pricked out, which may be in June, an inch or two of lime rubbish, burned earth, and sand should be spread on the ground, to prevent the plants damping off. They require scarcely any water.

*Pentstemons* are tolerably hardy, tall perennials, producing handsome flowers of various colours in the autumn. *P. Murrayanus* is a brilliant scarlet. *P. Hartwegi* and its varieties, and *P. pulchellus* and its varieties, are very free-blooming kinds. To get them to flower early in autumn, sow seed early in March in a hotbed, and plant out in May. If sown out of doors in spring they must have protection. They may be increased also by division of the plants in spring, or by cuttings of the young shoots in spring, summer, or autumn, under a glass, in sandy loam and leaf mould. *Gentianoides* and its varieties require a little protection in winter, unless the position be warm; and for security it is best to take cuttings of them, and keep them in a cold pit through the winter.

The *Enothera* and *Godetia* are large showy flowers, some of which grow very tall. The *E. acaulis* bears very delicate silvery-white flowers; the *E. grandiflora*, and many others, are a bright pure yellow. The *godetias* are hardy annuals, many of them purple, allied to the *Enotheras*. *Rosea alba* is white, with a bright crimson spot on each petal. They may be raised from seed sown in the garden in March and April, or sown in September and protected in the winter. The annual *enotheras* may be served in the same way. The perennials may be increased by division of the plants in spring, and the rarer kinds by cuttings of the young shoots under a hand-glass, early in summer. Seed of the perennials should be sown on a slight hotbed in the spring, and planted out in May.

*Sanvitalia procumbens* is a beautiful hardy annual, growing close to the ground: a capital plant for covering a bed, or for borders. The flowers are a rich brown and yellow, and large in proportion to the size of the plant. Sow in March or April, in the open ground.

In arranging this list of plants for the garden of set form, I have tried to introduce all heights and all varieties of colour, so that whatever may be the situation, form, or size of the bed to be planted, an appropriate suggestion may be found. Masses of *white* may be obtained in several verbenas, campanulas, geraniums, phloxes, *enotheras*, sweet alyssum, white *Clarkia*, petunias, and white *Salvia patens*. For *scarlets*, verbenas, geraniums, and *salvias* are the grand resource. For *purples* we may get supplied amongst verbenas, petunias, lobelias, lantanas, and phloxes. Fine *pinks* may be found in geraniums, verbenas, and *salvias*, besides many plants more particularly described above. For *blues* we have lobelias, *cinerarias*, *salvias*, and

several common flowers. The *yellow*s already named are sufficiently numerous, and in addition, *Coreopsis lanceolata* and many others might be given.

Bulbs, and plants of similar character, are especially valuable on account of the little room they take, in proportion to the size and handsome appearance of their flowers; also because a great many of them bloom when other flowers are scarce, and they can be cultivated without difficulty. When bulbs are in a state of rest, the approach of which is indicated by the leaves dying after the flowering is over, they should be moved and kept out of the ground a longer or shorter time, according to the kind. With the summer-flowering kinds this happens in autumn, and with those which flower in autumn, in the spring. Some have to be taken up annually, others will go on without for a number of years, and none should be kept long out of the ground. Almost all bulbs require a free, dry, and rather rich soil. They are injured by being allowed to go to seed. As they grow fast while in the growing stage, they generally require plenty of water and depth of soil.

In the case of many, interesting new colours may be obtained from seed, which should be sown far apart in beds of light earth, where the young plants can remain until they flower, which is often from three to five years, sometimes much longer.

That magnificent tribe of flowers, the Lilies, are noble ornaments in any flower garden. We have scarcely so fine a white in any other flower as in the white lily, *Lilium candidum*. The situation for these roots should be well drained, and the soil for them is a good loam, well manured. If left in a place they like, the clumps will improve in size and beauty; if, on the contrary, they decline, take them up in September, change the exhausted soil for good compost, place at the bottom of each hole, where it is intended to replant, a shovel-full of rotten dung, and plant three strong roots in each clump. They should not be kept any time out of ground; they will flower the year after, and much better the year after that. The small offsets can be planted in a nursery bed of the same rich earth, and in two years or so they too will be fit for planting in the garden.

The Martagon Lily, or Turk's Cap, may be treated like the white lily, only mix sand with the soil in which it is planted.

Those well-known lilies, the Tiger Lily and Orange Lily (*Lilium tigrinum* and *Lilium aurantium*), make handsome showy clumps in the flower garden, producing abundance of flowers respectively in August and September, and May and June. These may be planted in the same way as the white lily, but when the flower stems grow up they throw out rootlets round the bottom: to strengthen the flowering, these should be encouraged by throwing a few little lumps of manure round the stems for them to take hold of. These lilies increase abundantly by the formation of tiny bulbs at the axils of the leaves on the flower stems. When these fall with a touch, plant them, 6 inches apart, in a bed of light earth richly manured. In two or three years plant them out again, double the distance apart, and in two years more they will be fine bulbs.

The magnificent *Lilium lancifolium*, in its few beautiful varieties, should be a matter for investment, in the necessary number of shillings for the

purchase of the roots, and in the necessary care for its not difficult cultivation, for every one who really loves splendid flowers—and who does not? There are the white, the red, and the golden. The last is of comparatively recent introduction: in addition to the rich crimson spots on its delicate white petals, it has a beautifully shaded bright gold band down each, and it is magnificent alike in the size of the flower and in the size of the spray, as the bulb reaches maturity. These roots make beautiful greenhouse plants, and they will do in the open ground in the southern parts of England. In the open ground they may be cultivated like the white lily, but there must be a covering of dry ashes, or some such protection, over the bulbs in winter. They throw out roots at the bottom of the stems like the tiger lily, and are propagated, like the white lily, by offsets.

Irises are of three kinds—the fibrous-rooted, those which grow from tubers, and those which grow from bulbs. The first like a rich loamy soil, the others will thrive better in leaf mould and peat, with the addition of sand, as much damp rots the roots. The fibrous-rooted are increased by division of the roots and taking off the suckers, and the tubers by division. The bulbs form new roots, and as the new come under the old roots they should be taken up and replanted every second or third year. The handsome Chalcidonian iris requires a dry soil in winter and plenty of pure air. The *Tigridia*, or Jersey iris, of which there are several varieties, is a showy flower, with a gay mixture of scarlet, yellow, and chocolate. It grows well in sandy loam and leaf mould, and the roots must be taken up for the winter. Each flower lasts only one day, but every root produces several. The irises are summer flowers.

The Belladonna Lily, *Amaryllis belladonna*, has the fault of sending up its stem of beautiful, bright rose-coloured, lily-like flowers, without leaves, like sunshine without shade, and similar anomalies, sometimes, but not often, found in nature. The situation for them must be well drained and sheltered; they will do out of doors only in warm situations, and they must be taken in for the winter. They are from the Cape of Good Hope, and flower late in summer or in autumn. The rule to be observed with all bulbs, to give them a season for growth and a season of rest, must be especially kept to with belladonnas: give them plenty of water, heat, and all encouragement at command when they are coming into flower, and starve them in those items when the flower is past, until they are in a state of rest—i. e., non-growth; then keep them in a temperature several degrees above freezing, and give no water. The roots may be planted in a warm border, 6 inches deep, not too soon in spring, and taken up before frost can come. When it is wished to make them flower early, take dormant bulbs, pot them in sandy loam and leaf mould, place them in heat, beginning at 50° and increasing gradually to 60° or 70°, and when the leaves grow give plenty of water. If it be considered desirable that seed should ripen, the plants must be watered until the seeds are ripe, but not so liberally as while the plants are in flower. The seed should be sown, directly it is ripe, in sandy loam, and the pots should be placed in a moist house or frame, near the glass. Pot off the little plants when they are 2 inches high, shift them as often as



they want it, and they will reach a flowering size when about a year and a half old: the pots should be well drained with crocks. In the west of England, the Channel Islands, and similar localities, the belladonna lily does well in the open ground. Planted near together, the roots become a mass which need not be disturbed; and thus grown they look very well, as there are generally some roots with leaves in each clump, as well as those in flower, and this takes off the bare look which flowers without green always wear.

The *Tritoma nararia* makes such fine showy clumps in a garden that it should never be left out. Its tube-shaped flowers, shaded from scarlet to pale yellow, are produced in great abundance, and the roots may be bought at 1s. or 2s. each. It came to us from the Cape of Good Hope, flowers in summer, remains in beauty a long time, delights in rich sandy soil, and requires protection from wet and frost in winter. It is increased by division and by suckers from the roots.

*Tritoma grandis* is of stronger growth, flowers when *T. nararia* leaves off, and continues in flower quite into winter. The two will continue in beauty five months or more.

The Polyanthus, Narcissus, Single Narcissus, Jonquil, Double Daffodil, and all the Narcissus tribe are most valuable in a garden, from producing their delicately beautiful fragrant flowers early and without much trouble in the cultivation. They are all hardy, and will grow in good garden soil if sand be put round the roots. The fine large bulbs produce the finest flowers. They may be allowed to remain in the ground year after year. When the flowering is over, the leaves must not be cut off, but left to die down. Most of the kinds produce offsets from the bulbs freely, and they may also be grown from seed. Almost all flower in spring, some very early. Only *Obsoletus* with white, and *Veridiflorus* with green flowers, bloom respectively in August and September.

Crocuses are almost indispensable for making the flower garden gay in early spring, for the ground is scarcely clear of snow when the beds become enamelled with their large sized, bright coloured, prettily varied flowers, of brilliant gold, purple, lavender, and white, plain or variously streaked. Any garden soil will do for them, but they prefer rich sandy earth. They may be planted from towards the end of summer to the end of November; and to make beds gay in spring which have been filled with summer flowers, the crocus roots should be put in as soon as they can be obtained. To get a succession of them flowering in pots, they may be planted at intervals, from the earliest time at which they can be bought, five, seven, or more roots in each pot. If they have heat, it should be very slight, and they will come forward nicely on the windows indoors. In planting them out of doors they should be put about 3 inches deep, and 2 inches apart: a wet poor soil does not do. Good roots are imported, and may be bought at any good florist's, and depended on, at from 1s. 6d. per hundred to 6d. per dozen. The roots should be taken up every second year, the large roots replanted, and the small offsets planted in a bed for two years.

To raise seedlings, sow in October in an airy spot, in light rich earth;

cover the seed to the depth of a quarter of an inch; and when the young plants grow up in the spring, only keep them clean from weeds, clear away the leaves when quite decayed, and spread a little rich light earth over the roots. Treat them the same for another year, and in September transplant them into fresh light rich earth, 3 inches apart, and in two years more they will flower, when good new sorts should be taken care of. The autumn crocus, *Crocus sativus*, from which saffron is made, is very pretty, and worthy of a place in the garden: its flowers are violet. Most of the autumn flowering kinds are violet or purple, but some are white. The *C. Cartwrightianus creticus* is a pretty pale yellow, with fine large flowers, which come in October.

The Hyacinth has the merit of being quite the oldest cultivated of



HYACINTH.

florists' flowers, and its fragrance is equal to its stately beauty. Simply planted in the flower borders, hyacinths are handsome, sweet, and easy to grow in great beauty; as fine roots, only requiring planting out and proper treatment, may always be bought. Wherever you wish to place the bulbs, loosen the earth late in autumn with the spade to the depth of a foot, and clear it of intruding roots from neighbouring plants. Arrange the bulbs—a centre one, and the rest in a circle round it—near together, well pressed into the earth, and covered with 3 or 4 inches' depth of earth if it be garden loam, and 5 or 6 if it be sandy. The hyacinth is hardy, and more likely to suffer from wet than from frost; so, if the soil be

not very light, a little gutter may be scraped out round the roots to drain off the superabundant wet; or the bulbs may be planted on a sloping border, and that will answer the same purpose. Thus planted they will flower well even for three years.

The more artistic method of growing hyacinths is planting them in beds, where the beautiful flowers and gay variety of colour look very well. To make the beds, dig out the earth in September to the depth of 3 feet, and fill up to 1 foot above the surrounding ground with sandy loam, mixed with leaf mould and well rotted cow manure, or that from an old hotbed. In October plant the roots 6 inches deep and 6 inches apart, and during the winter protect them from severe frost and too much wet. When the bloom

comes an awning should be put over the bed to shade it from sun and wet. As soon as the flowering is over, give plenty of air; and when the leaves turn yellow, take up the roots, label each with its name and colour, and place all in an airy shady place until they are quite dry. Clean the roots, rub off the dry rootlets, and store them, upside down, on a shelf of laths until the time for planting again. If canker attack them, slight injury may be cut out, and rubbed with powdered chalk; but if the canker be extensive, the roots affected had better at once be thrown away. Before replanting, the soil of the bed should be partially renewed. The offsets may be planted out for a year, when they too will be good roots.

The single flowers will produce seed, which in ripening will sacrifice the parent root. If it be wished to obtain new kinds, sow the seed as soon as it is ripe; the seedlings will come up the following spring, and if well cared for will flower in from three to five years.

Tulips, as common garden flowers, need only a top dressing every year.

The *Leucojum*, Snowflake, or St. Agnes' Flower, is a sweet little white flower, of a pretty drooping habit, like the snowdrop, only larger, and growing several on a stalk. The roots increase abundantly, flower in spring, and do well for planting an aquarium. Sow the seed as it ripens.

The *Ornithogalum umbellatum*, or Star of Bethlehem, is a pretty flower, of a clear decided white, and quite hardy. It will do for years on the same spot.

The Oxalis is a tuberous root, of which there are many varieties, producing showy flowers of various colours — red, rose-colour, purple, and yellow. Many of them require protection in winter. Most of them may be bought for 2s. per dozen, or less.

The Scilla is a pretty bright-coloured spring flower, which is quite hardy, and will grow in any good garden soil.

The Winter Aconite is almost the earliest blooming of bulbs. It likes a light soil, and a warm, open, dry situation.

The Zephyranthes are Cape bulbs, which produce elegant flowers, one on a stem. Some of them are quite hardy, and may be planted like crocuses on any warm border, and, like them, they must be taken up every two or three years. They like a somewhat sandy soil.

The sweet delicate little Snowdrop, *Galanthus nivalis*, will do what so few pretty flowers will do, thrive under the drip of trees. The double snowdrop is perhaps more taking, and the Russian snowdrop, with smaller flowers, is also pretty. Snowdrops like a light rich soil, and increase by offsets. They flower very early, and should be divided and replanted every four or five years.

The sweet and lovely Lily of the Valley also grows under the drip of trees, but it requires light. This pretty plant is very touchy, but where once it takes it grows luxuriantly: only leave it alone, for nothing seems so much to interfere with success as digging among the roots. Where the roots take they will grow so abundantly that clumps may be taken and never missed. That rather favourite plant with many, the Solomon's Seal, is of the same family.

## ANNUALS AND PERENNIALS.

It is almost superfluous to mention that annuals are plants which grow up from seed and die in one year. Many of them can, however, be kept alive for a second year, and encouraged to grow large, by preventing their ripening seed the first.

Hardy annuals are those that bear our climate so well that the seed may at once be sown in the open border from February to May, according to their capacity for withstanding the degree of frost which we often get in spring. A succession, for flowering later, may be sown even until the middle of June. Many kinds will bear transplanting, but as a general rule it is best to sow the seed where the flowers are to remain. When seed is to be sown, the ground should be duly prepared by forking, manuring, and adding any other soil or fertilizer which the nature of the ground, and of the plants to be grown in it, may require. The spot to be sown may then be made firm and flattened by pressing it with the bottom of a flower-pot saucer, or other flat surface; then spread the seed, taking especial care that it shall not be thick enough for the young plants to come up crowded, cover it with fine mould, and put in a label. All kinds of tallies and labels are sold and used, but bits of lath, in 6 or 9-inch lengths, smoothed, painted, and written on with a pencil, do very well. If the seedlings come up too thickly, they must be thinned to such a distance apart as their size when grown up will require; but as thinning, however carefully done, can hardly fail to do mischief to the plants left, sowing seeds thinly should be always attended to. To save the seed from being eaten by birds, a garden-pot may be turned down over them until they are up.

Half-hardy annuals are those which must be raised indoors or with the aid of heat, and protected from frost, but which will do in the open air with us in summer. Most of these are sown in a gentle hotbed in March, April, or earlier. When they have a few leaves, they are pricked out into pots or seedling-pans, still kept in the frame, in a greenhouse or indoors, and planted out when all danger of frost is past. Many flowers of this kind may be reared without difficulty on the windows or flower-stands in a sitting-room or other rooms in a dwelling-house, safe from cold, frost, and too great change of temperature. In frost, if they are grown on a window-seat or window-ledge, it is sometimes necessary to remove them to the table in the middle of the room when the fires are put out, until they are lighted again. It is often a good plan to sow the seed so thinly in pots that each pot may make a clump for planting out. When the roots are so grown as to make a good ball of the earth in the pot, it may be planted out without being broken, which will greatly facilitate the after growth.

Tender or greenhouse annuals require shelter and warmth at all times, but some of them will do in a warm sheltered spot out of doors from June until the nights get cold, and will even ripen their seed.

The same terms of hardy, half-hardy, and tender, are applied to all plants; and in making selection from the excellent and valuable lists of plants and seeds which are sent out annually by Messrs. Carter and Co., of Holborn,

and other first-class dealers, it is necessary to bear in mind that the plants, bulbs, seeds, &c., marked "hardy," will do entirely in the open air, that those marked "half-hardy" and "tender" must be raised with the aid of heat, and protected from cold and frost. In the protection given it is often necessary to guard against too much wet, as well as too much cold. This is especially the case with bulbs, and all of the carnation kind: many which are staunch against the cold of our climate succumb to its damp.

Mignonette is of such constant utility in giving fragrance to the garden, and in filling up very prettily every corner that wants filling up, that it must come first among annuals. I believe it is not an annual in its own country, but with us it is generally treated as one, and is sown in the open ground in light sandy loam, well drained, and manured with leaf mould, from the end of April to the beginning of July, keeping the whole garden fragrant until the frost cuts it off. If the seed be allowed to shed, abundance of self-sown plants will come up the following spring, and these should always be carefully spared, as they will be finer and flower earlier than those from seed regularly sown. The soil for it should be sandy for the perfume to be in full perfection.

To get pots of mignonette in flower in the winter, sow seed in the open ground, or in pots placed where they will have plenty of air and light, in July. In September shift the young plants into the pots in which they are to flower. One plant to a pot if fine, or three if rather small, will be quite enough, and in moving them care should be taken not to disturb the earth from the roots. If the pots fill with root, re-potting into larger pots will make the plants grow fine. Before there is a chance of cold nights, take the pots into the house, and keep them in a room without a fire until they have flower buds, and then they may be placed in a sitting-room where there is a fire, and with good watering every day, and preventing their seeding, they will keep in flower for months. Seedlings from seed sown a month later may be brought forward to succeed these, only keeping them safe from frost until they are brought forward to flower. By a similar process pots in bloom may be kept for the house all the year round.

The mignonette, as I mentioned before, is a perennial in its own country, and a little management in culture will, without difficulty, make a tree of it here. Sow seed the end of April in a compost of rich mellow loam, mixed with one-third of thoroughly rotted cow manure, a little sand, and a little lime rubbish. Have as many small pots as you wish to have plants; place at the bottom of each some crocks, a little of the lime, and fill the pots with the compost; place three seeds in the centre of each, just cover them with earth, press them down tight, and water them. Place the pots in a window or in a cool greenhouse, and do not force them, but let them have plenty of air. Water every morning with a fine rose, and when the days are fine enough, put them out of doors for a few hours. As the little plants grow strong, pull up all but the finest, put a stick a foot long or more against it, pressed down to the bottom of the pot for steadiness, and train the plant to it, as it grows tall, with slight ties of worsted. Stop all side shoots at the second joint, and nip-off all the flower buds before they

bloom. The second year cut back the side shoots closer, beginning at the bottom, and going up gradually week by week, and continue to train the plant up tall. As the pots get full of root, re-pot the plants, on as far as August, not later. Of course they must be kept from frost in winter. When they are one year old the stems will get woody, and before they are three years old they will be shrubs, and will bloom well for many years.

There is a larger-flowered mignonette, which is, I believe, only the result of cultivation.

For hardy annuals we have Venus's Looking-glass (*Specularia perfoliata*), producing its purple flowers in spring and early summer. It likes a rather sandy soil.

*Convolvulus minor* produces a good mass of blue in spring, and the *Nolanas* are similar to it in character, with purple, violet, blue, and white flowers. They will grow in any good garden soil. *Calandrinia umbellata* grows freely in any garden soil, and produces its crimson flowers close to the ground in June, and flowers for a long time. The colour is brilliant, and there are other pretty *Calandrinia*s, growing rather higher, of other colours. The plants will flower earlier if raised in gentle heat or under a hand-glass. *Cacalia*, scarlet and yellow, are useful plants of free growth. Sow the seed in the borders in April.

The *Calliopsis*, or *Coreopsis*, is a summer-flowering showy annual, the several kinds of which are of various gay colours, and are useful from remaining long in flower, especially if the seed be nipped off as soon as the flower drops. Sow the seed in March, and protect by a turned down garden-pot over each clump; or sow the seed on a hotbed, and plant out the young plants where they are wanted, when they are large enough. The different kinds grow from 1 to 3 feet high, and they do in a light sandy soil. The seed may be sown in autumn, and will then flower earlier. Some of them are perennials, and they may be increased by division of the root.

The *Callichroa platyglossa* is hardy, with bright yellow composite flowers, the seed of which may be sown in March in a slight hotbed or under a hand-glass, or in the open ground rather later. The *Cladanthus arabicus* produces its dark yellow flowers in July, and keeps long in flower. Sow the seed in April. The *Cladanthus canescens* is a greenhouse evergreen, producing its yellow flowers in June, and is propagated from cuttings under a glass.

The *Clarkias* are pretty pink and white flowers, of delicate form, from 1½ to 2 feet high, flowering abundantly from June to the end of summer. The seed may be sown in March or in September, and protected through the winter, to bloom early. The Rose of Heaven (*Viscaria cæli rosa*) with its pretty rose-coloured flowers, and several of the same family, producing pink, white, and scarlet flowers, are profuse bloomers, fit for beds, edgings, or groups. Sow the seed in the border in April; or in a warm dry sheltered spot in September, to stand the winter and flower early. *Schizopetalon Walkeri* is a low-growing, cruciform, white flower, very fragrant, and thriving in sandy loam and leaf mould. *Eucharidium concinnum* are low-growing, free-blooming, hardy annuals, flowering from spring to autumn.

Sow in September, March, and May, to keep up a succession. The Euto-cas, of several kinds, are free-blooming annuals of various colours. The seed may be sown in April, and the plants must be far apart to give plenty of air, or they will not thrive.

The Candytufts are low-growing annuals, biennials, and evergreens, with cruciform flowers, most of which are white. They may be sown in autumn to stand the winter, or in the spring. The *Sempervirens*, and all of its class, may be grown from seed or cuttings. The Kaulfussias are low-growing and pretty, the different kinds having blue, dark violet, and rose-coloured flowers. Seed may be sown in the borders in April, but it is better to sow in March, and give a little heat. The pretty composite flower comes out in June or July, but it does not last very long.

Lupines are of all colours and all heights. The seed is sown in the ground in February or March. *Mutabilis* and *M. Cruickshanki* are splendidly branching plants, which, if sown early in autumn and kept in a frame for the winter, make fine plants. The perennials are good bushy plants for a large garden, and are increased by seed or division of the roots. Love in a Mist (*Nigella*) is hardy, compact, and pretty, something like larkspur in habit of growth, the different kinds producing flowers of various colours. The seed may be sown in the open ground after the middle of March. The Collinsias are pretty, and may be treated like coreopsis. The Pheasant's Eye (*Flos Adonis*), so pretty from the way in which the bright crimson flowers peep from amongst the feathery foliage, grows from seed in common soil, and flowers from summer into autumn. The Adonis has other sorts, several of which are perennials, and are increased by division of the root or by seed.

Ten-weeks Stocks fully deserve attention from their beauty and fragrance. Such fine varieties and colours are grown from the German and Russian seed supplied by first-class seedsmen, that it is better to purchase than to save seed. Use vegetable loam, with one-sixth part of river sand; sow from March to May for summer flowering, and in August and September to stand the winter and flower early. Sow the seed far apart, and only thinly covered, and place the pots near the glass. When the young plants get several leaves each, they may be potted singly, or planted out in groups or beds. To get fine plants it is best to plant them out in pots, and turn them out into the borders when the pots have good balls of root in them. Stocks like a chalky soil. It is said the strongest seed is most likely to produce double-flowering plants; therefore leave very few seed-pods on a plant, give it high cultivation and plenty of sunshine.

The Brompton Stock is a splendid plant when it is well grown. It is a biennial. The seed should be sown far apart, in a rich light soil, early in May, not in too hot a place. As the young plants grow, water them every evening with a fine rose: they should be as much as 6 inches apart. When a month old, some should be removed with good balls of earth to the roots, and carefully planted, so that all may be quite a foot apart. If the tap-root be disturbed in the removal the plants will not do after. In the following March or April make in the borders where the stocks are to be planted

beds 2 feet deep, and 2 feet every way, of rich sandy loam, enriched with leaf mould or the remains of an old hotbed, and transplant the stocks with large balls of earth, undisturbed. They should be shaded for a little time, and watered every night until they flower.

China Asters, which are increased to an almost endless variety of Chinese, German, quilled, globe-flowered, pyramidal, French bouquet, dwarf, &c., are valuable from producing a gay abundance of rich-coloured bloom when flowers begin to get scarce in September and October. You can hardly give them earth which is too rich, and from the seed-pans onward they must have plenty of air and room. The seed may be sown on a hotbed in February or March, the young plants pricked out when they have a few leaves each, and planted out in May. Seed may be sown, not too thickly, in the open ground in April. First-rate seed may be bought. Those who save seed themselves should take it only from the best flowers. Self coloured should be clear, distinct, and bright, and the flower should be fine in shape, very double, regular, and well quilled. The striped flowers should have the colours well defined and sharply marked.

We must not leave the annuals without a few words about Balsams, those pretty delicate plants, the beauty and luxuriance of which depend so very much on culture. Those who wish to have fine balsams, unless they happen to possess good seed, should buy the best which can be obtained, in order to secure fine double flowers. Sow the seed in a good hotbed, and when the young plants are ready to be pricked out, prepare some light rich soil for their use. The little plants being 3 inches high, plant them out singly in small pots. Never let them get pot-bound, but when the roots are sufficiently grown, re-pot, using richer earth to fill up every time, and giving free air in abundance and water as required. Nip off the buds, and carry on the shifting until the plants are in 8, 12, or 16-inch pots, according to the size you wish to attain. If the plants grow fast, they will want re-potting about once a week, and the pots may be plunged in a hotbed of 75° temperature. When the plants are well grown, harden them by degrees, and allow the flower buds to grow. The seed should be chosen from the finest flowers, and should be from one to three years old—the older (in moderation) the better. The plants like plenty of air, light, and water, and the slightest wound will destroy them. The flower should be large and double, and distinct in marking, like a carnation.

Annuals, with their absence one portion of the year and untidiness at another season, we might do without, and even bulbs, with their temporary splendour, could, perhaps, be dispensed with, although we should much miss their brightness among flowers; but the ever-varying yet ever-constant beauty of our innumerable perennials, handsome in foliage for so large a portion of the year, even when their flowers are off, we should miss more than any other class of plants. With them in abundance we could manage to cultivate a flower garden satisfactorily; without them, it would be difficult indeed to maintain for it a home-like face.

The Campanulas are fine, showy, hardy plants, which are most useful in a garden from the abundance of their handsome flowers. Some of them grow



very tall, and the *Campanula pyramidalis* (the chimney companion of cockney gardeners) may be encouraged to an enormous size by repeated re-potting, preventing its coming into flower for two years, and very rich soil. It produces its immense quantity of fine blue flowers the beginning of summer, and keeps in flower a long time. It and all the perennial campanulas are increased generally by division of the root, but they may be raised from seed, and they like a rich garden soil.

*C. cinesia* and *C. uniflora* are beautiful little campanulas, which grow quite close to the ground, and are covered with their pretty blue flowers during June and July. *C. carpatica*, *C. rotundifolia*, *C. garganica*, and many besides, are also rather of low growth and summer flowering. All these make pretty bedding plants, from their good-looking foliage and most abundant flowers. *Campanula medium*, the Canterbury Bell, is one of our freest-blooming biennials, giving to the gardens splendid blues of all degrees of intensity, pure masses of white, and double flowers both white and blue. *C. speculum*, Venus's Looking-glass, has been already mentioned as an annual: several other names have been given to this pretty flower.

The campanulas are so pretty that many of them are quite worthy of culture in pots, and the roots of all are said to be good to eat.

The Columbine (*Aquilegia*), from the peculiar form, abundance, and graceful set of the flowers, the variety of its colours, and for its pretty foliage, deserves to be much more generally cultivated than it is. The seed keeps long, should be sown in March, in sandy soil, under glass, and the young plants will often flower the same year. The columbines are quite hardy, grow from 1 to 2 feet high, come into flower in May, and flower for a long time. The roots may be divided in autumn or spring.

The Snapdragons (*Antirrhinum*) are hardy, easy to cultivate, and have an almost endless variety and mixture of colour. They will do in any garden soil if not wet, grow about 2 feet high or a little more, flower in June, and keep in flower all through the summer. Good sorts should be propagated by cuttings, as seedlings generally vary from the parent plant. Great variety in colour may be got from seed, which should be sown in spring: the young plants have the advantage that they flower the same year.

The Foxglove is a handsome growing flower, which makes a good mass of colour wherever it happens to be wanted, and offers a fine pure white. The seed should be sown in the autumn, that the plants may flower the next year. *Digitalis Canariensis* is a handsome plant from Teneriffe, producing yellow flowers: it is a greenhouse plant.

The Veronicas are fine, showy, hardy plants, producing blue, purple, and white flowers in summer. They will grow well in any garden soil which is tolerably light and moist. They are increased by seed and by division of the roots.

The Wallflower (*Cheiranthus cheiri*) is gay and very hardy, and especially valuable from producing its deliciously fragrant flowers early and retaining them long. A light, rich, sandy soil suits them best. The fine double sorts must be propagated by cuttings, under a hand-glass, in May or June. The double yellow, double blood-red, double purple, and several others are hand-

some, but they have not the fragrance of the common single sorts. *Cheiranthus Alpinus* is a pretty little hardy plant, fit to grow in pots or on rock-work. *Cheiranthus mutabilis* requires a hothouse. Wallflowers grow very readily from seed.

Was there ever a child who did not think it the glory of his or her life to get a root of double daisy, whether to be planted in the juvenile garden or placed in the nursery window, over the crowded thoroughfares of England's great metropolis? Let us, therefore, in memory of our early favourites, make room for Double Daisies—white, pink, red, quilled, and hen and chicken. These pretty flowers are more cultivated in other countries than in ours, and M. Van Houtte, of Ghent, has more than twenty varieties in his catalogue. The daisy makes better edging than almost any other plant except box. To make the roots grow strong and improve the flowers, the plants should be taken up and divided every year. They thrive in loam richly manured, and when they are replanted the ground should be dug and manured. They make good beds in an emergency, and can be removed to make room for later bloomers when they go out of flower. Wireworms are so fond of them that they are said to leave carnations and pinks and other choice flowers to go to them. New sorts are raised from seed.

Violets can scarcely be too abundant in the flower garden. The common sweet-scented violet is one of the most delightful wild flowers of our country. White violets generally grow in chalky land. The Neapolitan violets flower in winter, and are very sweet. The Russian violets also flower in winter: in a warm sheltered spot, these will be in bloom and fragrance from autumn to spring. Violets out of doors want to be planted on a bank (they will not bear *stagnant* damp) in a shady place, in a rich, light, peaty soil, where they will have moisture. Ashes from the bonfire or any charred articles make good manure for them.

The Pentstemons are nice showy flowers for bed or border. Seedlings will flower the year they are raised. Several of them require in winter the protection of fir boughs or moss among the plants, from London northward, and with such it is best to make sure of saving the kind, by making cuttings to keep over the winter in a frame. To propagate, divide the plants in the spring, when



VIOLETS.

the growth commences, or take cuttings of the young shoots any time in spring, summer, or autumn, and strike them under a hand-glass in a mixture of sandy loam and leaf mould.

There are many other useful perennials well deserving attention. The Spiderwort (*Tradescantia*), with its rich purple flowers, golden yellow anthers, and sweet scent; the Michaelmas Daisy, that intruder so difficult to keep within bounds; the Rose Campion, Feather Grass (*Stipa pennata*), Balm of Gilead, the common Ribbon Grass, showy in garden and nosegay; all come in well in helping to keep up a good variety as to heights of various plants for different positions on the borders, time and habit of flowering, and colour of the flowers.

Carnations should have a place in every garden where they will grow, no less for their beauty than for their delicious fragrance. As florists' flowers, they are divided into three classes: Flakes are striped with one colour and white; Bizarres are streaked with two colours and white; Picotees, which are the hardest as well as perhaps the most beautiful, have each petal margined with colour on a white or yellow ground, or dotted with very small spots. The beautiful and deliciously scented clove is said to be the original form of the carnations.

To make a compost for growing carnations, take loam from an upland pasture, cutting thick turfs from the surface. Let them lie in a heap for a year, turning them over every month, and picking out the wireworm with great care. To this add one-fifth part of cow manure which has laid to rot two years, and a fifth part of well decayed vegetable mould. Mix these together, and let them lie three months longer, turning them over three or four times during that time.

Choice carnations are very often grown in pots. They are planted for flowering, generally in pairs, about the end of March, in 11-inch pots, well drained with crocks (as they are injured by much moisture), and with the earth well pressed about the roots. Use the compost without sifting, but look through it well for wireworms. Place the pots in a sheltered part of the garden on a bed of coal ashes, water when necessary, and as the flower stems shoot up, place a stick to each high enough for the flower when it comes out, and tie the stems very slackly, for fear of their bending or breaking. As the buds swell, thin out all but the most plump and healthy. When the flower begins to open it is very apt to burst unevenly. To prevent this, place an India rubber ring round the bud, or tie it with a bit of bast, and if it is inclined to burst on one side only, cut the calyx a little open at two other places with a fine pair of scissors. When one side of a flower is spreading too much towards the sun, turn the pot round. To make flowers bloom in fine spreading form, paper collars are put round them to which to spread the bloom. The collar is a round piece of stiff white paper, with a hole in the middle to receive the calyx, the leaves of which are turned down to keep it in its place. The outer range of petals is arranged on the white paper, and it should not extend beyond; and then, range after range to the centre, the petals are put in nice order, and I believe the tweezers are used with any which are insubordinate or faulty. When flowers

are exhibited, all this manipulation seems hardly fair, but it is a question which the most influential judges would find it difficult to place under rule. Before the plants come into bloom they should be ranged on stages or stands, the feet of which should be placed in earthen or leaden cups for water 15 inches wide and 3 or 4 inches deep, with a socket in the centre large enough to receive the feet, to keep off the approach of slugs and all creeping destroyers. The stands should have an awning to keep off sun and rain. Watch the flower stems, to support them as they grow taller. The flowers come in June or July.

Carnations are generally propagated by layers laid down the end of July and beginning of August, when the plants are in full flowering vigour: the earlier it can be done, the better the layers will be established before winter. Choose fine, healthy, outside shoots, not those which have, or have had, flowers. As earth to cover the layers, have ready a compost of light loam and leaf mould, half and half; and the best pegs for fixing them are made of fronds of the common fern, birch, or hazel twigs. Dress the stems intended for layering by cutting off all the lower leaves, leaving about six nearest the top untouched. If there are too many good shoots in the pot, take some off for pipings. Make an incision with a very sharp knife on the under side of the first layer, just below the third joint, bringing the knife slanting upwards partly through the joint. Holding the cutting, take a hooked peg in the other hand, and with it fasten down the layer, pressing it gently but firmly down to the soil. Proceed in the same way with the layers all round the plant, and then cover the slit joint with the compost to an inch in depth. Do not water the newly layered plant until the next day, by which time the wounds will have healed over partially. Layering is done in the same way when the roots are planted out of doors. The young plants may be separated from the parent plant and potted in August.

Carnations may also be propagated by pipings, when the flowering is over. Fill the necessary number of pots with the compost prepared for the carnations nearly up to the top, and fill up with silver sand. Break off the pipings at the third joint, then in each piping cut a little upward slit, plant them in the sand pretty thickly, and place the pot on a gentle, hotbed on a bed of sifted coal ashes or river sand; put on the sashes, and shade the pipings from the sun until they have rooted, then harden them off gradually, and plant them out into small pots.

The chief points in a carnation are a firm upright flower stem, calyx well and regularly opened, flower round, with the petals regularly disposed, largest outside, decreasing in size to the centre, and colour clear and distinct. Those with stripes should have the stripes widest at the edge of the petals.

The yellow Picotee Carnations are very striking. These beautiful flowers, in all their varieties, need by no means be neglected by persons who do not care for them as florists' flowers, for their culture is quite within the scope of any young lady's gardening. Good carnations are often grown from seed. Packets of seed of twelve choice kinds are sold for 3s. and 3s. 6d. by Messrs. Carter, of Holborn, and no doubt by other first-class seedsmen.

Sow the seed in the spring, and when the seedlings have made six or eight leaves, prick them out in pots or prepared beds: the next year will show their merits.

Pinks naturally seem to follow carnations. The commoner sorts are most useful in a garden, especially the white, white and chocolate, and deep pink and chocolate, which form great patches of their respective decided colours, and keep flowering for a long time. They will thrive in almost any garden, but require rich earth to make the bloom fine and large. Beds for choice—*i. e.*, the laced pinks—should be made with loam and a fourth part of well rotted manure, raised above the ground around, and highest in the middle. Pinks require similar cultivation to carnations, but they are raised by pipings taken in May or June. Plant in rows, 12 inches apart every way, shelter them in winter (wet is more injurious to carnations and pinks than a slight degree of frost), stir the earth round the roots in spring, and mulch them with a little well decayed stable manure early in June. Pinks, when good, have the edge of the petal white, the lacing distinct and fringed at both edges, and a distinct eye at the base of the petal. The flower should be very large. Old plants form nice roots for the borders.

That curiously stiff-looking yet pretty and varied flower, the Sweet William, belongs to the Dianthus family also.

We should ill fulfil our task of giving help to the young gardener if we omitted to name that chief ornament of all gardens—the Rose.

All roses are included in the two great divisions—summer-blooming and perpetual. Summer roses mature their buds and bloom, and then their flowering is over until the next year; perpetuals begin to bloom early or rather late, according to the character of each, and produce buds and flowers in continued succession till stopped by winter cold.

Rose trees are grown in various forms. Standard roses have the stem, without shoots, from 4 to 5 feet high, and the head of leaves and flowers at the top. Half-standards are of the same form, but the stems are from 2 to 2½ feet high. Dwarf standards have the stems a foot or 1½ foot in height. Rose bushes are allowed to grow thick and bushy quite from the ground. Weeping roses are roses of rampant growth, budded on tall dog rose stems, and trained or allowed to fall over: they are very beautiful, but do not do well in a situation exposed to wind. Pillar roses are grown tall, and trained up a stake 10 or 12 feet high: roses for this must be of a vigorous habit of growth. Besides these, there are climbing roses for training, and dwarf roses for budding.



ROSE.

Roses are either grown on their own roots, or budded or grafted on wild rose or other stalks.

Rose trees on their own roots may be made by division of the root, by layers, by cuttings, or by suckers.

Layering, or laying down a branch under the soil to take root without severing it from the parent plant, should be done in summer or autumn. If the work be omitted at these times, it may be done in the following spring, to save more loss of time; but July is best. When the shoots of the year's growth are 18 inches or 2 feet long, which should be about the middle of July, take off the leaves from the base of the shoot to be layered, two-thirds of its length, with a very sharp knife. Then carefully bend it down to try the best spot for fixing it, and there dig a hole, measuring 4 or 5 inches every way, and fill it with compost. The shoot must then be tongued (*i. e.*, an incision made in it, cutting upwards about half way through, just below a bud), and gently twisted so that the cut may remain open. The tongued part must be set in the middle of the compost, fixed in its place with a peg, and covered to the depth of 3 or 4 inches. The tongue should be made on the shoot above where the bow will come, so that it may not be more than 2 inches under the earth. A large stone may be placed on the surface of the ground to fix the layer. The compost should be rotten manure and pit sand in equal parts, well mixed. In November the layers may be taken up if they have rooted; if not, they may be removed the following spring, or may be left longer. If the shoots are not long enough in July or August, the layering may be done in October, or even in February and March. The plants intended for layers should be cut down very low the year before, that they may make long shoots by the time they are wanted. Layering will do well with all free-growing roses, but it is most needed for sorts which do not grow well from cuttings, such as the old and other moss roses, and Provence and Austrian roses.

The most satisfactory of all methods of increasing rose trees is by cuttings. Roses on their own roots are like a house founded on a rock: contingencies which destroy choice roses on others' roots leave them comparatively unharmed. An intensely severe winter has comparatively little mischievous influence over roses on their own roots. Violent wind may destroy a budded standard; but in the case of one on its own root you always have the root left, to put out again, and to produce its own kind still. On account of the stability of a rose on its own root, I especially recommend my young readers to increase all roses which can be so grown by cuttings. It requires time and care to make tall standards from cuttings; but it may be done, and when it is, successfully, the time and care are well paid for. A rose which has not stability of character to take to its own root must be satisfied to use the root of another; and roses differ as much in character as men and women: but I shall try to name the best sorts which will grow well from cuttings.

There are many quite first-rate sorts which may be grown from cuttings, planted under a hand-glass on a north border in summer. Dig out a space

a foot and a half deep, and rather larger than the hand-glass; put in crocks for draining to the depth of half a foot, half a foot of manure, and fill it with good compost of friable loam, leaf-mould, and sand. Cut and plant the cuttings in the same way, never removing the glass except for necessary watering. In this way I have known good useful roses do well, and make handsome bushes, and, with necessary training, standards.

It is a good plan, in planting the cutting, to make a hole, put in the cutting, fill up the hole with silver sand and water, and press the earth tight. Cuttings may be made in spring, summer, or autumn; but we have found no time so good as June and July, although in favourable seasons they have done well as late as Michaelmas. There is another way of planting cuttings which we have found very successful. Get a 3-inch pot, stop the bottom hole with a cork, fill it with water, place it inside a 6-inch pot, with the tops of the two even, and fill up the outside pot with compost. Plant rose cuttings round, close against the pot of water, and keep the whole close covered with a glass until they strike, which is often in about two months.

To get cuttings ready early in the year, so that the young trees may be ready to plant out early in summer, strong rose trees in pots may be forced in December, placing them in a sunny situation to ripen the shoots.

Propagating by suckers is not often practised, but it is useful in the case of Scotch and Austrian roses.

Roses on stocks are produced by budding and grafting; and for this kind of propagation the first step is to procure stocks, which should be planted in November, to be ready for working—*i. e.*, budding or grafting—the following year. The stocks generally used are from the dog rose, the common wild rose of England, suckers of which can be taken out of hedges, or tall stems of which can be grown as cuttings, planted deep. They are fittest for standards, as the stems grow more kindly than those of stocks of a more aristocratic descent. When the stocks are planted in autumn, the roots should be pruned close, and the stems shortened to the height required: for standards, 3 or 4 feet; for half standards, 2 or 3 feet; for dwarf standards, 1 foot, a little more or less; and for rose bushes, to within a few inches of the ground. The stocks should be planted in rows 3 feet apart, and it will do good to throw some litter round their roots.

Budding has the advantage of giving the vigour of the stock to a kind of poorer growth. The season for budding is from early in June to late in August—*i. e.*, whenever the scion and the stock are both in a good state, from having the sap flowing freely; otherwise the bud will not be ripe, and the bark on the stock will not rise freely. Buds should be taken from ripe shoots of the current year, and may generally be got when the tree is in flower. Budding should be done quickly and dexterously, to leave no time for either the bud or the incision in the stock to dry; damp, cloudy, mild weather should be chosen, and the best time is early in the morning or after the heat of the day is past. Where the rose leaf joins the stem, a little bud will generally be found: one which is plump and healthy must be chosen. With the sharp budding-knife pare off the bud, with a portion of the bark in the form of a shield, leaving on a portion only of the leaf-stalk, by which

to hold it, and from behind the shield of bark remove what woody fibre there may be, leaving the root of the bud full, plump, and undisturbed. A plumpness of the bud should be seen inside the bark. In the bark of the stock to be budded make a horizontal cut, through the bark only, and from the centre of that a perpendicular cut downwards. If the stock is in a good state for budding, the angles in this T-shaped cut may be readily raised with the budding-knife. Insert the bud by pushing its little shield of bark under the bark of the stock, from the cross cut downwards, and when it is pressed in far enough, cut off the upper end of the shield at the cross cut. Secure the bud in its place by tying it round with soft cotton twist, worsted, or bast, and the place may be covered with a coating of cow dung and clay, or left with only the ligature. A laurel leaf fastened at each end by a ligature round the stock, so as to arch over the bud, will defend it from the sun's rays, air, and wet, any of which might interfere with its growth. The tie which keeps the bud in place must be watched and loosened when necessary, which will generally be in about three weeks, and removed a few weeks later. A few inches should be taken off the briar which has been budded, to make the sap flow more to the bud. The Manetti stock may be budded later in the season than the dog rose. After the budding, about the month of November, not sooner, all the branches not budded must be cut from the stock; they may then remain until May, when they must be watched, and have all the wild buds rubbed off as they appear, leaving, however, two or three shoots above the bud to draw up the sap, only nipping off their ends from time to time until June, when they too may be cut off.

Grafting roses is much less frequently resorted to than propagating them by other means. Spring is the time for it. The stock to be grafted should be forwarder than the scion, and operated on when the sap is in activity. Whip, cleft, and saddle grafting may any of them be used. Grafting is, however, more fitted for indoor than for outdoor cultivation.

Any deep soil, with a cool subsoil, suits roses on the dog rose stock, but a deep stiff loam is best for them. The black porous soil sometimes met with in gardens is bad for them, and must be improved by a mixture of stiff loam. Sharp gravelly and light sandy soils are also bad. Rich peat land is not bad, nor bog earth, if it be thoroughly drained. The soil of all others is a deep, rich, rather retentive, somewhat greasy loam, well drained. Roses on their own roots, or on the Manetti stock, do not require such a stiff soil as those on the dog rose, but all light soils for roses will be benefited by a good allowance of surface manure. In making beds for tea-scented and China roses on their own roots, dig out the earth to a good depth, and lay in a layer 6 or 8 inches deep of draining material, and then fill in the earth, lightening stiff loam with sand and an abundant supply of leaf mould and well rotted manure.

Roses on briar or other stocks may be planted in November or December; but if the ground be wet, or not in good condition, then the planting may be delayed until February or early in March. Tea-scented and other tender kinds may be planted out in the end of March; and tea-scented, China, hybrid perpetual, and Bourbons, on their own roots, not before April.



Those who buy rose trees should bespeak them, or select and mark them, early in autumn, to prevent the disappointment arising from buying after the nursery stock has been picked over. If they are received before the best time for planting, shorten the long fibrous roots, and never let the roots get dry, but put them in earth directly; lay them in by the heels, as gardeners call it. Tea and tender Noisettes can be put in under a wall, where they can be sheltered with mats, or somehow protected from frost, until they may be finally planted. Choose a fine day for planting, when the earth is moist, but not wet enough to stick to the spade or shoe. Good compost is, for light soils, well rotted cow manure and rich stiff loam from an old pasture; and for stiff land the manure, with sand or burned earth, allowing a barrow-full each to large trees and half that quantity to small ones. Dig the hole for the root quite large enough, spread the roots evenly to their full extent, level the earth and shake it in about the roots, holding the plant the while, that it may not sink too deep, and tread in the earth. Care must be taken not to plant dog rose stocks too deep. Manetti stocks, on the contrary, are worked quite low down, to allow of their being planted so that the union of the bud or graft with the stock may be under the surface of the ground. Tall roses should be pruned, to prevent the wind tearing them, and they should have stakes. Standards should be planted 3 feet apart, and rose-bushes from 21 inches to 2 feet.

Pig manure is the best animal manure for roses; next, cow manure and horse manure; the sweepings of poultry and pigeon-houses are also good. They should lie in a heap long enough to be thoroughly rotten, but not long enough to lose the ammonia. Pig dung should be spread and forked in at once early in spring. Young ladies should ask assistance of the gardener in this branch of flower culture, as well as for heavy digging.

In the spring the earth round every rose should be stirred to the depth of 1 or 2 inches, and again whenever the surface gets hard, taking great care later in the season not to disturb the roots.

To keep the growth of roses within bounds and in good shape, disbudding, or rubbing off all the buds likely to produce shoots where they are not wanted, or where they will be too crowded, prevents much after trouble in pruning. After the buds are fairly started, look over the tree with eye "on the visioned future bent," and rub off or cut out all that are likely to shoot in a wrong direction, and thin out wherever the shoots threaten to become too crowded. This will not only improve the growth but it will strengthen it.

Pruning is chiefly done in the spring. Trees may be cut back to four or six eyes the first year after budding, as soon as the sap rises and the buds are observed to swell. If they are planted out in the autumn of their first year, they may need a little shortening then, to prevent the wind having too much power over them, but they should not be pruned closely when newly planted.

When the established trees are pruned, the pruning must be done with reference to the growing shoots forming a good and not too crowded head or bush. To ensure uniformity of growth on all sides of the tree, all the



DISBUDDING THE ROSE-TREES



shoots left should be of about equal size, and any of rampant growth had better be shortened, and their lateral shoots stopped as often as necessary. In shortening shoots, cut close to an eye, leaving, as far as practicable, stout plump buds, because they are likely to produce flowers; and spare also those that turn the right way, to give the tree a handsome shape:

French, moss, alba, Provence, damask, and Austrian roses require close pruning; that is, the wood of the year before is cut back to within an inch or two of the two-years-old wood, leaving on these shoots only two or three eyes, which will throw out as many shoots, with bloom. To make the plant conical, prune the centre shoots closer than the outer and lower ones; they will then grow in advance of the sides, and thus make the plant pyramidal in shape. The vigorous growers may have more moderate pruning: for the strong shoots 6 inches, the weaker ones 4.

Hybrid China and hybrid Bourbons require care in pruning, as, with them, pruning their long rampant shoots may spoil the flowering. These rampant growers may be thinned out; the strong shoots should be left 2 feet or more in length, and the weaker 1 foot or 18 inches. With some kinds it is necessary to leave the strong shoots their full length, while with those of moderate growth the sprays may be about 6 inches or a foot. These vigorous growers will often decline after a few years; when they do so it will be advisable to prune closer. It may be well even to prune quite close, and force the tree to make new wood and a better form. In a healthy tree cut back, new eyes will form, even in quite old wood.

Austrian briars require different pruning from any other roses. The *Harrisonii* must only be thinned out, and their sprays just tipped. The Persian yellow must be pruned in quite close every alternate year, to keep it from exhausting itself.

Hybrid perpetuals, damask perpetuals, perpetual moss and Bourbon roses should be pruned some time in March. These roses are very numerous, and present wide differences in habit. Those of a dwarf and moderate growth may be pruned down to two or three eyes, and all weak and crowded shoots removed. Those of more robust growth may be thinned out the same: the strong shoots may be cut to 6 or 8 inches long, and the smaller ones to 4 or 5.

The tea-scented, Noisette, and China roses may be attended to with the knife at the end of March or beginning of April, and they do not generally require close pruning. Especially with the tea-scented and China roses, only thin out small weak wood, and shorten the sprays a little. In the vigorous-growing Noisettes the shoots should be left long. That fine yellow rose, the Cloth of Gold, is worthy of great care on account of its beauty, but it is a shy bloomer. It must have a place against a south wall, be well manured every year, and have no more pruning than just enough to keep it trained. To make it bloom, get it to grow freely; when established and in vigorous growth it will bloom freely, both in summer and autumn. In severe winters it must be protected.

Banksian roses will seldom bloom until they have been established three or four years. They must be pruned after the flower has gone off, which is

generally the end of May or beginning of June; shorten long vigorous shoots nearly a third: the bloom comes on the one and two-years-old wood.

The following are the important points of a good rose: Constitution should be hardy, healthy, and of a tolerably robust habit of growth, with good foliage, and a good bloomer. The flower must be fine in form, full, large in size, and decided and distinct in colour. The form of the flower, whether it be cupped, globular, or widely expanded, should be symmetrical; the petals even and regular in their arrangement, full, but not too crowded; the outer range broad and firmly set, rendering the flower lasting. In texture they should be firm and thick, not thin and flimsy. Fragrance, and a firm upright stem, are points. A green or yellow centre to a flower when open is a great fault.

#### GARDEN OPERATIONS IN JANUARY.

Preparing composts, and setting them ready for future use, is one good employment for January leisure. It is well at this early season to settle in our own minds the flowers which we wish to make our specialities in the coming year, and to prepare for them by considering the composts which they will require, and laying them up ready.

Gravel walks should be rolled, after slight rains and after gentle thaws, but in a quick thaw using them should be altogether as much avoided as possible, and (a word to the wise) before thaw comes completely on, all drains should be cleared of dead leaves, and placed in good working order. Snow should be swept from the paths pretty constantly, to prevent its softening them completely when thaw comes; but it may be laid up in masses on any spare bit where it can do no harm, as it is a valuable fertilizer. To some plants a covering of snow is as good a protection as any.

All the seeds may be looked over, arranging, packing up, and writing on those that are good, and throwing away those which have been proved to be bad, or which are too old.

All bulbs which are showing above ground must be protected. Half-hardy trees or shrubs may generally be protected by having some light covering thrown over the tops, as frost falls from above. This, with a little mulching of dead leaves at the roots, and a hay-band twisted round the trunk, will generally be enough. Sawdust, leaf mould, or old tan makes a good protection for anemones, tulips, hyacinths, and scillas. Wherever the beds require a dressing of fresh soil they should have it, and this is often more beneficial than manure, which, if too abundant, is apt to produce leaves rather than flowers. On poor soils, however, give manure, but let it be well incorporated with the earth, deep down. Pinks, pansies, polyanthus, and all plants of a like nature should be looked over, and the loosened roots well set in the earth. Before severe frost takes us by surprise it will be well to be prepared with good simple protection for everything which is likely to be killed or injured by it, and we must be especially on our guard against sharp frost which comes unprepared for by the protective mantling of snow.

Plants in pots, put by in windows, unused rooms, frames, pits, or any

indoor corners, must have all the air and light possible: as long as the weather holds off from becoming very severe, do not stint giving air in abundance, but water with caution.

Use the mild time industriously in deeply working the flower beds wherever there is space enough at liberty to do so with safety to the plants, &c., which are growing in or near them, for depth of soil is most valuable, and many flowers will overcome the difficulties of bad seasons if they can have the power of choice in pushing their roots deep in dry weather.

To commence preparations for potting, which at most times gives plenty of work, get all the pots thoroughly well washed, and ranged in sizes, indoors. Pots should never be used dirty, but should be clean and smooth inside, that the future necessary shifting of the plants may be easy. They should be kept dry too, as from their porous nature they absorb wet, which freezing, will crack them during the first intense frost, and they should be used dry, that the earth may not adhere to them too much. Get the earth for potting moderately dry. In re-potting it is a good plan to warm the potting earth by a stove or a kitchen fire, that it may be a few degrees warmer than the ball of earth to the re-potted plant. This will encourage the points of the rootlets to spread into the added new soil. Avoid doing the re-potting in a cold place, for plants should have no check at this season. When ladies pot their plants they require a potting-stick to press in the new earth which is given outside the old ball. It is a flat stick, smoothed and shaped like a stout-made paper-knife. When potting or shifting is required in winter, avoid giving more water than is necessary, as doing so would cause a chilling evaporation which would be injurious to the plant, and water as much as needed before shifting, not after.

To ascertain if the mould is of the right degree of moisture for potting, squeeze up a ball of it in the hand, and if it just holds together slightly it will do; if it forms a lump which can be laid down without its falling to pieces, it is too wet.

In potting always place crocks at the bottom of the pot 1 inch deep or more, and generally a little fibry loam, moss, or rooty peat over them, then a little earth and the plant, and afterwards fill up. Be careful to use for each plant the kind of earth best suited to it.

The foliage of plants in the house should be kept clean, as well as the outsides of the pots and the saucers. The best way to clean the leaves is to wash them very gently and carefully with a soft sponge, and water of a temperature of 65° or 70°. With small plants which have some foliage, put a paper tight down over the mould, hold it firm with the hand, turn the pot upside down, and give the plant a gentle washing in a pan of tepid water. Large plants with minute foliage must be syringed.

Above all things avoid coddling favourite plants, until really severe weather renders it necessary to shut out frost and give protection.

These hints, given for January, will many of them come into play during all the spring months, especially those relating to doing indoor work in bad weather, and earth stirring and other outdoor work whenever there is neither frost nor wet. Planting, transplanting, potting, and re-potting too, must

be done whenever the weather and other circumstances render it most advisable all through the spring.

### GARDEN OPERATIONS IN FEBRUARY.

Make plans of the beds of the flower garden, and settle how they are to be filled, preparatory to arranging the stock of cuttings, bedding plants, and annuals: head-work now will save lots of hard work hereafter, and work for the pocket also. Cut, shape, and smooth plenty of tallies, and put them by in a safe and usual place, for little will be gained if they are either put away where they cannot afterwards be found, or left about to get lost. Let some be of a sort to set in the ground, and others furnished with a hole and twine or wire, for fastening them to trees and plants. It is a good plan for security against loss of names to have numbers cut in the tallies, and to keep the lists of plants agreeing thereto in a book. Any covers for protection that can be made on wet days, are pretty sure to come into use very soon. Prepare a lot of crocks for potting.

Carry on potting to the full extent of the space at command for keeping the plants where they will be safe from frost, and not too much crowded to do well. Any plants from which early cuttings will be wanted should be forwarded now as much as opportunity and their healthy development admit, remembering not to force too much, as run shoots for cuttings will not make strong plants.

If many annuals are wanted, the hotbed or hotbeds made last month will now be found useful in rearing hardy and half-hardy varieties. For hardy annuals, plain loam will produce sturdier and better blooming plants than a more manured soil; and if they are raised on bottom heat, they should be removed from it as soon as they are above an inch high. Hardy annuals may be sown in the open borders towards the end of the month, if the weather be free from intense frost, and, even if it continue a little sharp, seed may be sown on a warm sheltered border, and protected, giving air whenever it is feasible. The object to be kept in view is, to get a very sufficient supply of strong plants to put out a little later in the year, and to flower early. Autumn-sown annuals, which have stood the winter so far, may have a dressing of soot and ashes for the *good of the slugs*, and protection, if necessary.

A small frame, with sashes, merely placed on a raised bed, not on a hotbed, and half filled with cinder ash, will be found most useful in giving just enough protection to plants which are coming forward for turning out. Before placing the pots in it, water the cinder ashes well with thoroughly boiling water, to destroy the insects.

Cuttings for bedding plants may be put in whenever they can be got and safe room can be spared for them, for if a set flower garden is contemplated, a great many will be wanted. Cuttings which are growing well may, perhaps, be removed from the place where they have grown to a cooler, to make room for fresh set cuttings. Give choice *Daulias* heat, to start the shoots for making cuttings.

Prepare for slugs and snails with a top dressing of soot and ashes wher-

ever plants grow which are their especial favourites, and try to catch the mice in traps before the crocus roots and other bulbs fall a sacrifice.

Look well through seedsmen's lists of plants to see what seeds should be sown, indoors or out, this month, especially remembering Stocks, Larkspurs, and all useful showy plants.

Consider the requirements of Hyacinths, Tulips, Carnations, Roses, Auriculas, and all choice flowers, and give them the protection, dressing, fumigation, pruning, and other treatment they stand in need of.

### GARDEN OPERATIONS IN MARCH.

Now, in the garden, the "mirth and fun grow fast and furicus." Not an hour of fine weather and daylight must be lost.

All the flower beds and borders should be forked and regularly set in order. Wherever there is space for it to be done without mischief to growing plants, shrubs, or trees, let it be deeply worked, putting in leaf mould deep down, for a deep soil in a garden is always good. Where beds stocked with perennials and roots of all kinds render deep working dangerous, fork the surface, finely pulverizing the mould, and taking care not to destroy. Gardeners' careless forking and digging often destroy plants which less careless owners find it very difficult to replace; and when a valued plant or group of bulbs has disappeared, the only explanation to be got, "I dug over the place, and I am sure I never saw it," gives very poor satisfaction. As the flower beds are forked over, have a mental eye to their future planting, and a bodily one to their present requirements, and as you progress put in the compost and the manure most likely to produce a good result for the coming floral season.

March winds are strong; none will deny that. After gusty days and nights it will be advisable to look over trained climbers and beds of choice flowers, and put in order whatever has been disarranged, especially taking care to fix and steady half uprooted plants. Where winter wet has rotted stakes and ties, they should be renewed.

Box and other edgings should be replanted and set in order, all the garden reduced to perfect neatness, and if any alterations in the planting be desired let it be done at once, for we may now expect the growing season to come upon us without loss of time, and when growth commences removals will be much less advantageous. This has reference to many miles round London, and similar localities. In Dorsetshire, beautiful Devonshire, west of that, and in the mild Channel Islands, work in the gardens will be more forward.

Continue to make cuttings, and to pot off growing cuttings, removing the well-established plants to cooler places, to make room for the new ones. Geraniums, Calceolarias, and Verbenas will strike readily now on a nicely made hotbed. Those who wish to use many bedding plants in their garden ought at this time to have a large supply on hand, from fine cuttings made in the autumn, to be continually reinforced this month by fresh-made cuttings.

Hardy annuals, which were sown in February, should be hardened off



for planting out. Some Sweet Peas may be sown very thinly in pots, and raised in a gentle hotbed. Some may also be sown in the open borders, and if, when those which are a little forced come forward, one pot of the forced peas is planted close against a clump of those grown in the natural ground, the two will make a fine clump, which will come forward early and last in flower a long time. Prick out the plants of ten-week Stocks, and any similar seedlings in hand, and sow more seed for a succession.

This month there may be a general sowing of hardy annuals in the borders, and also seed of good perennials and biennials without stint. In fact, abundant provision of plants of all kinds must be made, and all our lists looked over and books consulted, to see that we forget nothing which we shall have reason to wish for when we come to plant out finally, for every fine week lost now will be doubly missed later in the year.

Half-hardy annuals may be sown in a hotbed, and when the seedlings are an inch or two tall they may be transplanted into another hotbed, or planted out in pots to remain until May, when they may be planted out in the borders. Tender or greenhouse annuals may also be sown in a hotbed, pricked out into another, and afterwards placed in a greenhouse. There are, however, many which, if planted out in warm borders in June, will flower freely, and even ripen seed.

#### GARDEN OPERATIONS IN APRIL.

The important work of making cuttings requires a few more detailed remarks, which will apply more or less to all the period during which they are made. Cuttings have the advantage of perpetuating the old plant, whereas seedlings may vary from it in appearance or character.

In quick-growing soft-wooded plants, take as cuttings young shoots or tops of the plants. Such are *Anagallis*, *Antirrhinums*, *Calceolarias*, *Carnations*, *Chrysanthemums*, *Dahlias*, *Pinks*, *Wallflowers* (only the double ones are worth growing from cuttings), *Gorterias*, *Gaillardias*, the low-growing *Lobelias*, *Fuchsias*, *Geraniums*, *Petunias*, *Pentstemons*, *Salvias*, and *Verbenas*. Pots of all these will do in a frame, on a very gentle hotbed, made of dead leaves, manure, or tan, or in a more artistically heated house; *Geraniums* and *Fuchsias* almost anywhere.

The cuttings of some plants should be the partially ripened wood. Such are *Camelias*, *Cape Pelargoniums*, *Conifera*, *Erythrina*, *Echites*, *Gardenias*, *Gordonias* (something like *Camelias*), *Magnolias*, *Oleanders*, and many others.

Many plants may be propagated by cuttings of leaves with a bud at the base. *Cinerarias*, the tall *Lobelias*, *Statice*s, and most herbaceous plants are increased by offshoots from the base of the parent plants. Some plants do best from cuttings of the roots, and the *Rockets*, *Lychnis*, and suchlike, by cuttings of the flower stems. Cuttings of hollow-stemmed plants should be cut at a joint.

The leaves should be removed from the part of the cutting which is to go in the earth, and generally some at the top removed and cut, to reduce evaporation. For the same reason, to reduce evaporation, they are covered

with a bell-glass, and shaded. Shade is, however, a necessary evil, tending to weaken and enervate, and to make them shoot upwards instead of root downwards. Give as little shade as possible.

If pots and pans are at all scarce, as they are in most establishments at this season, cuttings will do in just anything that will hold earth. Our children picked up on the sands one day a worn-out tin baking-dish, with holes in it, and begged that it might not be thrown away, as they were "sure it would come in handy." Now it, and other things about as incongruous, *are full*. For striking the cuttings use light sandy soil, with good drainage. A little heath soil or leaf mould may be added, great care being taken that the last is thorough *mould*; for if any rotten leaves remain in it they will cause damp and mouldiness. Do not take cuttings until the parent plants have begun to make their spring growth, and then try to make the cuttings continue that growth without interruption. To effect this, do not wet the cuttings, nor let them flag. As soon as they are planted, take them at once to the place prepared for them, where they may have a little more heat than they had before they were cut, moist atmosphere, a little air at night (weather permitting), and as much light as they will bear without flagging. If they flag at all they must have shade, or a taste from the syringe.

Recently-planted or transplanted trees should have their welfare cared for. If the weather turn warm and dry, a little sprinkling overhead with the watering-pot will do good, with less danger of giving a chill than watering the roots. A hay-band wound round the stems and a little hay scattered about the roots will prevent injuriously chilling evaporation. Wherever the roots seem shaken by the wind, make the earth firm round them, and look to the stakes.

Continue to sow plenty of hardy annuals if the requirements of your garden will need them, and if the weather should become mild a good many may now be sown out of doors. In forking over the flower beds and borders take especial care not to destroy any fine little self-sown plants; for Nature, which has led them on so far, will often produce in them finer plants and better bloom than we can get in those which we rear with greater pains.

The hotbed may, when ready, be brought into use, by being filled with tender annuals, such as French and African Marigolds, Asters, Zinnias, Nolas, Canary Creepers, Morandias, Lophospermums, &c.

Much planting out and pricking out into the open borders can scarcely be depended on in our climate with safety yet; so if the indoor accommodation get over-crowded, and turning out become necessary, protection must be provided. We need scarcely fear worse weather in April than a simple pit or frame will provide for, if it have a cover of calico stretched on a wooden frame, to put on at night. *Frigi domo* has been much used and recommended, but white calico has the advantage of letting through more light.

The early-flowering bulbs will now be getting into full beauty, and the garden will be gay with all the early flowers, which in planting should never be left out, for when do we feel so greedy after flowers as we do when we have lost sight of them for months?

As the weather gets mild take care that indoor plants do not get too much warmth, watch for green flies and other insects, and destroy as they appear with fumigation, washing, and hand picking. Too much warmth and plenty of insects go hand in hand. Watch for aphides on indoor roses.

#### GARDEN OPERATIONS IN MAY.

In May planting out may go on with spirit, for even in our late springs frost scarcely ventures into the "flowery month." Mignonette should be sown in full tufts, which will come in nicely, as those raised indoors and planted out, and the self-sown plants, sure to come fine and early, get a little *passés*.

All the showery or damp weather must be made the most of for planting out the hardier kinds of choice bedding plants, such as Calceolarias, Verbenas, Scarlet Geraniums, and suchlike, leaving Heliotropes, Petunias, Anagallis, Nierembergia, and all that may be hurt by very slight night frosts, until the end of the month. It is better to be rather late in planting out, than to run risk from late frosts, provided the plants, when they are put out, are moved with care to take a large undisturbed ball of earth with each root.

It is very well worth while to make and have ready in May a slight hot-bed for the cuttings to have all to themselves, and it can be done with very little trouble. Place a foot and a half thickness of stable litter, lay on 9 inches of decaying leaves, and tread them down well; then add 2 inches thickness of well decayed leaves, and after that 2 or 3 inches of sandy loam and leaf mould mixed. Beat the surface smooth, water it with warm water, and finish it with a layer of silver sand. Cuttings will strike quickly in this, and it will be found very useful.

Dahlias and many other tender roots and plants may be turned out this month, when once there is safety from more frost. Florists' flowers will want plenty of work bestowed upon them throughout the spring months. The beds may be finished off with final neat arrangement and planting, and sowing seed of hardy quick-growing annuals wherever gay patches of bright colour are wanted.

As groups of annuals grow, care must be taken that they are not so thick as to crowd each other, or they will never be fine, either in the plants or in the flower. Plants which are growing tall enough to need it should have good stakes.

All the litter that has been used about the garden for giving early protection will scarcely be wanted longer, and it may as well be turned to account for helping to make yet one more gentle hotbed, which will be sure to come in handy for some purpose or other.

Plants which are in luxuriant growth, and are blooming very abundantly, may have a little manure water if they are of kinds which require rich nourishment.

#### GARDEN OPERATIONS IN JUNE.

As early this month as possible all the planting out should be completed, and all the planted out will for some little time after require constant





GARDEN OPERATIONS

watching and careful attention. Of course some failures will occur, even under the most favourable circumstances. It is well, therefore, to make provision by having a few plants in reserve. A garden of even very small size should have a little piece set aside as a nursery, to be kept stocked with a few fine plants, to be always ready to fill up vacancies, wherever they may occur. Trained plants on walls and trellises (if any fall to your share) should be gone over carefully, training and tying whenever necessary.

The early-flowering bulbs will be very much in the way, as we want to arrange and plant the garden finally for the year, but we must on no account sacrifice the roots by cutting off the leaves too soon of those which would be injured by such precipitance. Many may, however, be taken up carefully with large unbroken masses of earth, and planted in any out-of-the-way corner to die off at their leisure. Other roots which have lost their beauty for the season, may many of them be transplanted, with great care, in damp weather.

In clearing off stocks of cuttings, seedlings, and young plants of all kinds by planting out, it is a good way to pot a few fine ones of each kind, and to range them on beds of ashes (to keep off insects) in the nursery, or any place where they will be ornamental rather than the contrary. They will require little attention beyond watering in dry weather, and they are pretty sure to come in handy at a future time. If they should happen not to be wanted for filling up vacancies in the garden, the greenhouse, in boxes, or vases, or anywhere else where deaths or failures may make vacancies, how very few people there are in flower-loving England to whom a pretty flower in a pot is not an acceptable present, and how many persons there are owning small gardens to whom a nice plant is at any time most welcome!

Where the present gaiety of the garden will admit of losing some flowers, a great many plants may be encouraged to grow very fine by nipping off the flower buds. Some groups may be induced to remain longer in bloom, by serving some of the plants only in this way.

Unless we get very nice showery weather all the time the planting out is going forward, watering is a laborious item of the garden work, for until the young plants take to the ground they would die without this necessary evil. The water should be taken from an open tank, where from exposure to the air it will not be below its temperature. For delicate plants in chilly weather it should be a few degrees above it. The collars of plants should not be wetted, but the water so bestowed as to be taken up by the extremities of the roots; a little sprinkling overhead with a fine rose refreshes them. When liquid manure is given, take care that it is not too strong, and give it to no plants but such as are in active growth. When they are in full vigour of growth, and in danger of exhausting themselves with abundant flowering, the manure water may be given, good and without stint. Put it in at a little distance from the roots, so that the rootlets may take it up. Hydrangeas, Balsams, Cockscombs, Chrysanthemums, and suchlike plants of a vigorous growth will benefit by manure water. Do not give it to Heaths and similar hair-rooted plants. Never humour plants

with constantly repeated drops of water: if they get into the habit of wanting constant watering they will never do without it. On the contrary, do not water unless it is necessary, and then give a good soaking twice a week, and do not forget the advantage of mulching the roots. As soon as plants approach the season of rest, which varies in different kinds, of course the watering must be reduced—almost discontinued—as many times already stated.

Mulching, it may not be superfluous to state, is laying straw, litter, or manure round the stem of a plant or tree, and over its roots. In winter it is valuable as a protection to Magnolias, Camelias, and all tender trees and plants, and in summer it may be used sometimes to prevent deaths from excessive drought, by keeping in the moisture. It also gives nourishment to the roots below by gradual percolation. When it is no longer needed on the surface of the ground it is generally forked in as manure. Being rather untidy in appearance, it is not much used in the flower garden, although its benefit is often great.

Let any digging that yet remains be done on warm sunny days, as turning in the hot surface does the earth great good: this is the opinion of a first-rate judge in horticulture.

Cinerarias which have bloomed in pots may be placed out on a north border, worked and raked fine and smooth, and the self-sown seed will produce fine young plants. Some seed of fine kinds may be sown in pans, to produce plants to bloom early. Some plants may be planted out on a north border, and if a few of them are cut down and well watered they will throw up suckers, which can afterwards be separated from them.

In these instructions as to the work of each month I have tried to avoid repeating those already given.

Gross shoots on choice free-growing roses may be pinched off at about the third eye, to stop their keeping all the growth to themselves, to the detriment of the general growth of the plant.

An excellent writer in the "Journal of Horticulture" recommends the following treatment of leafy plants when first planted out, and I have no doubt of its goodness. On the first day he waters *just enough to moisten the roots* twice during the day, and syringes over the whole plants, scattering the drops like dew, or like a very gentle misty shower. The second day he syringes three or four times, if the sun is bright; he prevents evaporation *from the leaves* by giving moisture *on them* to evaporate; and by the third day they hold up their heads and want little more. This answers, too, on large beds, as a few strokes of an engine scatter water enough far and near, and the moisture which falls on the ground rises again in refreshing mist.

As the flowers planted out begin to grow freely, if you wish to cover a surface, attend regularly to pegging down, while the young shoots are yet pliant and tender. But in the old English flower garden, where flowers of all colours and all heights cover the beds and borders in gay variety—the kind of garden in which children most delight, so fit for the culture of staple, good perennials, choice roses, fine shrubs, and all the *lasting* things that make our garden like our older and most valued friends, always the same in

solid goodness though varying in surface from year to year—pegging down also comes most convenient in giving us good masses of one colour or one flower wherever we most want it.

As the rampant growth of summer begins, keeping order among flowers and weeds will want constant watchfulness and give pretty constant work. Box edgings should be clipped in showery weather.

All the tender annuals may be planted out this month, and plenty of Cupheas and other plants, which will come out nice and showy in the autumn.

### GARDEN OPERATIONS IN JULY.

Garden work is a rotation which scarcely ceases the year round. As we begin to reckon that getting through all the planting out and full arrangement of the beds and borders will give a little leisure, the growing season brings on weeds apace, and rampant growth in vegetation makes constant watchfulness, pegging, training, clipping, staking, and tying necessary. Insects, too, increase apace as soon as the restraining hand of winter is removed, and all these things give work in abundance, and will do so until frost shall again put vegetation, and its devourers, in the dormant stage.

Roses are now showing pretty plainly whether they have the soil they like. No watering will keep those on light and poorish earth in fine order, whereas a little sand and plenty of manure will, to a great extent, overcome the difficulties on stronger land.

If the beds are likely to suffer from drought, the surface may with advantage be mulched with a mixture of leaf mould, and the manure of an old mushroom-bed passed through a coarse riddle. A sprinkling of soot and lime will trouble injurious insects. Moss and cocoa-nut fibre also make good materials for mulching. The especial benefit of this mulching the surface of the borders is, that it tends to produce roots near the surface, and bloom, whereas manure deeper down makes the plants run to luxuriant foliage at the expense of flower. Cocoa-nut fibre and moss both make a nice-looking surface.

Liquid manure may be given to free-growing roses, to bedding plants, and other flowers, on the beds in which it is advisable to promote freer growth. Where mildew shows itself, water the spot where it appears, and sprinkle sulphur over it.

Cuttings of herbaceous plants may be struck under a glass on a north border. Choose the small shoots which are without bloom.

As the season gets on, general tidying in the garden gives plenty of work, and all the climbing plants must have regular attention in necessary pruning and training, keeping under the too rampant growth of the most luxuriant among them. The garden should be gone over regularly at least once a week, to place stakes and sticks wherever they are needed, prune back rampant growth wherever it appears, cut off dead flowers and withered sprays, stir the earth and keep it light and neat, and weed incessantly everywhere. The weeds on the paths alone want constant attention, especially after every little spell of wet weather. The flower-beds, too, the



shrubberies, and all parts of the garden require regular careful hand weeding, or chopping over with the hoe, according to how they are planted. Pay especial attention to any weeds which seem likely to go to seed. Weeds should not be allowed to show themselves in a garden, much more their progeny.

### GARDEN OPERATIONS IN AUGUST.

Insects are of all months of the year, but they are especially destructive in warm weather. With the very first warmth, aphides, in shoals and nations, show their unwelcome presence on our roses, geraniums, and almost all choice plants. A drying east wind makes them abound, and rain clears them away. Lacking the genial rains to do this work, we must take it in hand ourselves, with careful hand picking or washing them off, which can best be done by taking hold of each spray and washing off the green fly with a small soft painter's brush and clean water or weak quassia water. The next best remedy is fumigating with tobacco smoke. Here again you must call in the assistance of the gardener. Let the plants be dry when he uses the fumigator, and, if it be practicable, cover the head of each with a paper bag before it is operated on. Examine the plants the next morning, and repeat the dose if necessary. Plants in a frame or pit can easily be placed near together and fumigated *en masse*. Afterwards syringe freely.

The rose tortrix, *Tortrix Bergmanniana*, is a destructive grub, the butterfly of which is as small as a house fly, and very dark. Hand picking is the best remedy, and this must be done with the greatest care, for, on the least warning, the grub will drop with a fine thread and escape.

The bright and beautiful rose beetle is mischievous in both stages, but luckily it can easily be caught, being large and not very active.

The *coccus*, or scale insect, chiefly infests greenhouses and indoor plants. The females are inert, adhering to leaves or stems; and the males are winged, resembling gnats, but exceedingly minute. Clearing them off with a brush is most effectual, and fumigating with turpentine gets rid of them.

Similar in character, and amenable to the same treatment, are the oleander scale, *Aspidiotus neris*, which attacks oleanders, acacias, palms, aloes, and suchlike; the rose scale, *A. roseæ*; the cactus scale, *A. echinocactus*; and the sweet bay scale, *A. lauri*.

The caterpillars of many butterflies and moths are destructive in the flower garden, and when the perfect insects can be caught before they lay their eggs, one death will save much killing. Whenever one is found resting quietly on a branch, stem, or leaf, with the wings folded, it is most likely a female about to lay her eggs, and it had better be killed. If a butterfly or moth is found so placed, dead, she will have laid the eggs, which should be searched for and destroyed. As the season advances destroy chrysalises, if you can find them.

The grubs of many beetles are also destructive in flower gardens.

The earwig, *Forficula auricularis*, is very mischievous among dahlias, pinks, carnations, and many other flowers and their seeds. Earwigs eat at night, and in the day-time hide away in dark recesses, so that they may be caught

by giving them dark hiding-places, in which they may be looked for, and destroyed every morning. Small garden-pots, crab and lobster claws, pointed bags of thick dark paper, or any similar contrivance, turned upside down on sticks, will catch a great many.

Slugs, snails, centipedes, and wood lice are all very injurious.

After naming so many things which must be destroyed for the preservation of our flowers, a few words may be said on the more agreeable subject of those denizens of the garden, the lives of which should be spared, because, innocent themselves, they kill destroyers. First among these are frogs and toads; I ought to say toads and frogs, for the toads I believe are more active in eating injurious creatures in the garden—slugs, snails, caterpillars, grubs, moths, and millipedes. By all means spare the lives of the toads and frogs, and let them be defended from injury. Catch one and put him wherever the destructive wood lice abound, and you will find out his merits.

Moles are valuable in eating noxious grubs, so they should be treated with mercy, although they must be banished from under the lawn. Hedgehogs do good in the garden, eating beetles, snails, and slugs, and sometimes mice, which are very mischievous in eating any seeds that eat nice—bulbs, and some other roots. Young chickens must be kept safe from them. The shrew mouse is an insect-eater, and not a root and seed-eater, like the destructive field mouse. Bats also eat cockchafers (one of the most destructive among insects), moths, and suchlike winged things.

Snakes, slowworms, and lizards are all industrious destroyers of slugs, and do no harm to counterbalance this great good. So by all means let them live.

The pretty little ladybird should be respected and cherished as the great enemy and devourer of the aphides. I believe the perfect insects as well as their *larvæ* eat these pests of the flower garden. The *larvæ* are flattish, fleshy grubs, tapering to the tail; they have no legs, but are very active.

Mole crickets disturb the earth a little, but they devour grubs. Glowworms eat snails, and their relative, *Drilus flavescens*, does the same. All beetles are not to be condemned, as some of them are enemies to the flower garden's worst enemies—rose beetles, cockchafers, wireworms, slugs, and snails (skipjacks are wireworms in another stage). These useful creatures are some of the ground beetles, the tiger beetle, rove beetles (popularly known as cocktails and devil's coach-horses), and two kinds of silpha. One of the weevil family, *Anthrribus albinus*, feeds on the scale insect.

Bees of various kinds, so useful in spreading pollen, do no harm in the garden that I am aware of. The ichneumons and the sand wasp destroy caterpillars in great numbers. Even some caterpillars feed only on noxious weeds, but Mr. Wood says, "It may be assumed that every subterranean *larvæ* in a garden is obnoxious, and may safely be destroyed." The grubs of the lace-wing fly and the hawk fly feed entirely on spiders. Spiders also may be spared.

These few remarks on insects and other garden "friends and foes" extend over all the months between the first gleams of warmth and the time when insect depredations are curbed by winter frosts.

August work in the garden embraces minute attention to order in all departments—pruning, tying, restraining, taking cuttings as good ones present themselves, weeding beds, and paths, and watering with judgment when it is necessary

### GARDEN OPERATIONS IN SEPTEMBER.

To retain the flower beds in continued beauty it is most important to cut all withered flowers, and to cut in stems of too rampant a growth whenever it can be done without giving a check. Also be careful to gather seed-pods before they swell, wherever neglect in gathering dead flowers has allowed them to form. Constant little attention of this kind to the flower beds will keep them gay until quite late in the year.

The plants which are intended to produce seed should not be allowed to go on until the best bloom is past; but the finest flower on the finest plant should be marked while in its full prime, at whatever season that may occur. The plant should then have plenty of room given it, a mulching of manure if it be considered advisable, and all the flowers not wanted for seed should be plucked to give full strength to the few. A dry day should be carefully chosen for gathering seed. As soon as the seed is taken, some *Clarkias*, *Nemophilas*, *Columbias*, and *Candytufts* may be sown now, and the plants kept through the winter, as their seed never produces such fine plants as when it is sown as soon as it is ripe. Also sow *Godetias*, *Lupinus Nanus*, *Gilia tricolor*, *Leptosiphon androsaceus* and *Densiflora*, and *Viscaria oculata*. Seed of *Ranunculuses* and the *Cruciferae* will keep four years. Mignonette seed will do several years old; Wallflower may be two years old; Sweet Peas and Lupines should be used at one year old. Larkspur will not do well after the second year. Prince's feather and Poppies will keep several years. As a rule, however, it is better not to depend on old stock.

As the old hotbeds of the year are done with, and done away with, put up good reserve heaps of composts of different kinds, fit for all choice plants for potting and for making cuttings, taking care to mix them well, to turn them over to mellow, to pick out grubs and wireworms, and to shelter them from wet. Much of the success of next year's flowers will depend on having good stores of composts of various kinds to go to for their use. Do not forget a store of good turfy loam. The making of cuttings for good stores of plants must be actively carried on. Commence with white, scarlet, and purple *Verbenas*, taking nice stubby side shoots. Lots of such cuttings may be taken without materially interfering with the flowering plants. Fill 3-inch pots quite full of the cuttings, place them on ashes or sand with a frame over them, and they can be shifted into larger pots in January or February; top them for cuttings if more are wanted then. After these may follow the *Heliotropes* and plants of that kind, later scarlet *Geraniums*, and in October *Calceolarias*.

This month and the following, beds will have to be made for different choice flowers which are planted in autumn, and many bulbs may be put in. At the end of the month frost must be watched for with care. The *Dahlias*

had better be earthed up over their crowns, that they may not be caught and spoiled by sudden frost.

The choicer Geraniums had better be taken up and potted at the first threatening of frost, and put in a dry place where they will be safe from frost. If they can be placed on gentle bottom heat in a pit they will soon be established, and can then be stored away in winter quarters. Where it is necessary to take up showy tender plants rather early, their place can be supplied with Chrysanthemums coming forward, and any spare winter-blooming plants there may be in reserve.

Anne Boleyn Pinks, Cloves, and Carnations will flower nicely in autumn and winter under glass, almost if not quite without heat, if they are prevented blooming in summer by nipping off the flower stems as they appear.

Purchases of bulbs should be made in good time to prevent disappointment from indifferent supply from a well-picked over stock, of which we have no right to complain if it arises from our own remissness in purchasing.

Evergreens are transplanted this month, that the trees or shrubs may make fresh roots before the check of winter. If moved in September, they will be much less likely to suffer in the spring than if the work is delayed. Deciduous trees and shrubs must, of course, not be removed until they have lost their leaves. Many plants should be shifted now, that they may make root before winter. All the autumn-flowering plants will require constant attention in putting stakes, sticks, and ties, as not a flower now must be lost for want of care.

Cut off dead flowers and attend to the neatness of the beds and borders. Gather ripe seeds and sow some kinds. Make collections of composts for choice plants. Plant cuttings; make beds for bulbs and choice flowers. Earth over the crowns of Dahlias. Watch for early frost, to save tender plants.

#### GARDEN OPERATIONS IN OCTOBER.

When October begins frost in real earnest must be expected at any time, and prepared for. After the foliage of the Dahlias is cut down, they may remain a short time still in the ground, and then the roots must be taken up. Preparation must be made for protecting tender plants and climbers, as it may become necessary to defend them any night with very short notice. Preparation of protective materials may employ bad days; look over and arrange mats of all kinds, and make any covers of reed, straw, &c., that may be useful. Hardy creepers may be made snug by neat close training, and have rampant straggling sprays removed. Do the pruning of tender sorts at twice or thrice. Taking up and potting all choice plants which frost would hurt must be systematically proceeded with. The newly-potted Geraniums and other plants should, if possible, be placed on mild bottom heat, to start the roots before being put by in winter quarters. If Chrysanthemums and some other plants in flower are protected from the first frosts, they may yet go on and bloom and look gay for a long time. Cut down Hollyhocks, and daub tar on the cut stems to keep out wet.

Take up all the old scarlet Geraniums there can possibly be found winter

room for, because old plants will flower earlier and more abundantly than the plants from cuttings. If they are taken up early, and potted in pots just large enough to hold the roots, cuttings may afterwards be taken from them.

Set in order your flower beds and borders. Cut down abundantly, and pull up all dead and dying annuals, and clear away dead and untidy-looking matter of all kinds. Carefully collect all this mass of foliage, chopping up such tough stuff as Hollyhock stems, and collecting dead leaves, as many as can be got together, daily. This, even in a garden of medium size, will soon be a large quantity. Throw it all in a heap, pack it together, and turn it about, so that it will heat; for slight hotbeds, with inexpensive frames over them, will cost very little, and the more you can have, the better will be your show of fine flowers next year, for all the year round, with only a little management and forethought.

All herbaceous plants that have grown too large and straggling in growth should be taken up, have the roots divided, and be planted about where they will produce the best effect. Double Rockets, purple and white, should be so lifted, and put in a new spot once a year. On no account put off transplanting evergreens; common Rhododendrons will move well.

When the beds are cleared, make provision for gaiety in spring by planting Narcissus, Hyacinths, Turban Ranunculus, and Tulips. Beds of these edged with Crocuses of different colours look very nice. The pretty spring flowers, too, may be planted—Primroses, Polyanthus roots, Alyssum, Candytuft, Arabis, and Aubrietia will be done with in time to make room for bedding plants next year. Plant also early Tulips, hardy Cyclamens, *Hepatica*, red, white, and blue, Snowdrops, winter Aconites, and Dog's-tooth Violets. Do not forget to make the borders gay with plenty of free-blooming common roots, such as Wallflowers, Canterbury Bells, Sweet Williams, Foxgloves, fine Veronicas, and all kinds of showy, handsome perennials.

As many simply-made hotbeds as there can be found room, material, and frames for will be quite sure to get filled with advantage. Make the bottom of the beds below the level of the ground, and, to drain it, lay in 9 inches thickness of dry litter, such as the straw with the manure shaken out. Over this spread a little older litter, and tread it down well; then a few inches thickness of half-decayed leaf mould, and collected stuff of that kind with a little earth, and a wheelbarrow-full of lime, all well mixed together, to get rid of worms, &c, this also trodden down well. Over all place a sufficient thickness of light earth, if it is for cuttings, and if for keeping potted plants, tan, cinder, ashes, or any medium in which to plunge them, or a thin layer for them to stand upon. A bed can be made out of sight whenever the requisite material presents itself.

#### GARDEN OPERATIONS IN NOVEMBER AND DECEMBER.

Little remains to be done before the end of the year but to look to the last month's work and see that nothing is left undone, no choice plant intended to stay out the winter left without the protection necessary to keep

off winter frost and wet, and no cherished flower which should be lifted, forgotten and left to perish in the beds.

Take up the roots of *Tigridias*, dry them, and put them away where they will be safe from mice. Except in very favourable localities, serve *Gladioli* the same. *Salvia patens*, French and African Marigolds, *Fuchsias*, and such-like, may be kept alive by coverings of finely sifted coal ashes. To bedding plants, cuttings, and most plants in pots, future prosperity mainly depends on the invigorating supply of air they can get, as long as any spirit of growth remains in them; so give air freely to all, as long as the absence of biting frost renders it practicable. Sometimes we get little such before Christmas. Water must be given sparingly, only the plants must not be allowed positively to suffer for the want of it, and take great care not to spill it, as the damp arising from water is injurious at this season. Give water enough to wet the soil (taking care that the drainage is good), and then do not give any again until it is wanted.

All alterations should be finished in November.

When the last month in the year dawns upon us, more careful protection may be wanted, or very severe weather may keep off a month longer. Whenever it comes it must be met as if expected. All tender roots may be protected with coverings of half-decayed leaves, and hardy annuals dusted over with soot, quick-lime, and wood ashes to destroy slugs.

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## GREENHOUSE PETS AND WINDOW PLANTS.

Floriculture, though generally considered as a science, may with a little attention, even from those who scarcely know one class of flower from another, be rendered a most amusing as well as interesting occupation. What can repay in any commensurate manner, the little trouble that may be taken in spring or in the early autumn, as does the appearance of our greenhouse pets in the dark dreary days of winter in this our most variable climate? Stepping into the greenhouse about Christmas-time, when to all outward appearance vegetation of every description is at a standstill, you are met with the cheerful many-varied blooms, both in colour and perfume, of your greenhouse pets, collected, as it were, from every quarter of the habitable globe—the *Camelia*, from India, with its beautiful wax-like leaves and flowers,—it may be with two or three different varieties on one plant,—the method of obtaining which will be hereafter shown; the *Fuchsia*, from Chili, both double and single, with its long, pendent, graceful flowers, varying from darkest scarlet to purest white; and that most elegant of all flowers, too, the *Dielytra spectabilis*, from the most inhospitable of all regions—Siberia. One looks with wonder on it, and is almost induced to exclaim, "How could such a lovely flower venture to bloom in such a country?" Where the flower of the most patriotic nation in the world pass a life of slavery and misery that no words can possibly express—where Polish patriots of noble birth, dragged from their homes and all most

dear to them, languish in exile—this flower blooms, and appears to feel the miseries they undergo, for, upon closely examining it, we find, as it were, a tear in it, endeavouring to fall, but not daring to drop. It would seem as if the flower wept for the cruelties practised in its native Siberia. From frigid to torrid zone we go rapidly in our greenhouse, and find the Egg Plant, from Africa; the delicious Tuberose, from China; and also the *Primula Sinensis*, one of the very prettiest plants for greenhouse culture—in fact, in our estimation, the real pet of the greenhouse during the winter months, varying in its colours from almost purple to delicate pink, flesh colour, and white. Then we have the stately Azalea, grown either in a pyramid or circular, a native of India, with its hundreds of delicate blooms, from buff to orange and from scarlet to purest white; the *Brugmansia*, either single or double, with its long trumpet-shaped flower, a dingy red or the purest creamy white, indigenous to Peru. In contrast is the little Hepatica, from North America, with its pretty little double and treble bloom peeping from the earth before even a leaf appears, its little pink or light purple head as modestly drooping towards the ground as if it had appeared before it ought. Our own native Violet, too, is there—what perfume can equal it?—and by its side the sweet-scented and graceful-growing Mignonette (Egypt's weed), all tend to make us for the time forget we are in the very midst of dreary winter; and it is not until we turn our backs on our greenhouse pets that we can fully realize the fact.

As it is within the possibility of any one with the most moderate means at their disposal to have a succession of flowering plants during every month in the year, a few hints on those that any young lady may herself cultivate will be given.

Taking for granted we have a *small* greenhouse, with proper facilities for heating it, we must commence in spring to prepare the plants for blooming during the winter. Let us first of all take the Camelia, nice plants of which can be purchased from 2s. to 3s. each: some of the best and freest bloomers are *Candidissima*, *Fimbriata*, *De la Reine*, and *Alba plena*. Having a few plants, you may increase your stock by cuttings, taken off at the bottom of a leaf or at a joint. The soil peculiarly suited to camelias in pots is sandy loam and peat. The pots must be thoroughly drained with pieces of broken potsherd. During the time they are making growth they should be constantly watered with rain-water, and the leaves syringed or sponged at times when the sun is not upon them, as they are liable to change colour if watered in the sun. By keeping the leaves (which act as the lungs of plants) clean, you enable them to breathe or rather grow more freely; and as the camelia is an evergreen, the dark and shining leaves make it a cheerful-looking object even before the bloom begins to show itself. During the summer, from June to August, it should be removed from the greenhouse and very sparingly watered, to harden the wood and induce the formation of flower buds.

When the buds begin to appear, remove it into the house, and do not neglect watering it, or the flower buds will fall off. Different colours may be obtained by inarching or grafting: a little practice will soon make one perfect at either of these processes.

The Geranium next merits our attention. With a moderate amount of care and attention it may be kept in bloom the whole year round. The plants required for late blooming being cut down in March and April will add to the gaiety of the greenhouse in November and December. In cutting down geraniums (or, as they are now called, *Pelargoniums*), they should be taken off down to one eye or shoot, lifted out of their pots, their roots trimmed, and re-potted; the pots to be filled with chopped pieces of turf mixed with charcoal and vegetable mould, as the geranium thrives best when plenty of air is admitted to its roots.

Geraniums are most easily propagated from cuttings in the autumn, and, to save space, may be planted round the edges of the pots of the parent plant. When they have struck, they may be placed in separate pots, so that, commencing with only a few specimens in early spring, in a short period you will have an abundant supply; and as cuttings can always be obtained from neighbours by exchanging your own, you may have a varied and increasing assortment.

No greenhouse can be said to be complete in the winter months without a nice assortment of Hyacinths in pots. Good bulbs should be selected and potted in September. The soil must be sandy loam, mixed with cocoa fibre or rotten leaves, the crown of the bulb to be out of the ground. When planted, they should be put under a shady wall, with a slate under each, to prevent worms from working their way into the pots. Cover the pots with coal ashes 2 inches in thickness, to induce the flowers to grow before the leaves, in order to prevent that *gauche* appearance sometimes seen in the cultivation of this highly-perfumed and graceful flower. When the bulbs begin to show their leaves, remove the ashes and place the pots in the greenhouse. By December you will have the hyacinth added to the number of your greenhouse pets. Should you wish to have any hyacinths in glasses, some may be removed from their pots. The roots, carefully washed in water, may with little trouble be put into glasses, and water afterwards added, which must be replenished whenever it gets below the bottom of the bulb. Hyacinths grown for glasses in this manner are much less liable to grow leggy or top-heavy.

The real pet of the greenhouse, the *Primula Sinensis*, must be sown in pots about March, and when the plants are sufficiently large should be pricked out in 4-inch pots. A small quantity of this seed should be sown every year, as, being biennials only, they must be replaced. From a small quantity of seed many varieties may be obtained. The pots must be well drained and filled with equal parts of loam, sand, and rotten vegetable mould. The *Primula Sinensis fimbriata* is a beautiful variety, being exquisitely fringed. No greenhouse can be really said to be complete in its beauty if the *Primula*, in at least some of its varieties, has not a prominent place in it.

How sweet the scent of Mignonette in summer-time!—how far more acceptable will it be then in winter! A bouquet formed of that Egyptian weed and our own sweet violet is perfect. To grow the former is one of the most simple things in the world, and, from its mere simplicity, is very



often entirely neglected. One plant of mignonette may be preserved from year to year until it becomes a little tree. Take a strong plant from some seeds sown in April, put it in a pot by itself, and *pinch* it well, that is, wherever it attempts to show a blossom, nip it off. About September or early in October cut off all the bottom shoots, to make it look like a tree; move it into a larger pot, and put it in the greenhouse; water it regularly, keeping it moderately warm. By the spring some attempts at bark will begin to show themselves. Treat it in the same manner the following year, cutting off all the lower shoots and blossoms, and you will have a mignonette tree that will last and will bloom for years. In addition to this, a few pots of mignonette seed should be sown in July to enable you to have nice plants all the winter through.

To have Violets from autumn till spring comes round, you must set the runners in pots in May. Be careful to have the pots thoroughly drained. The soil for them should be of silver sand, loam, and vegetable mould. Keep them well watered, remove all runners, and with attention you will have a succession of blooms.

Tulips, though without any scent, must not be overlooked, as they make a greenhouse look exceedingly gay and cheerful.

They should be planted (four or five in a pot) at the same time as the hyacinths. The best sorts for greenhouse culture are the Van Thol and the double tulips, being stronger and earlier than the other descriptions.

Crocuses also have a most enlivening effect if planted in shallow pans in circles of alternate colours—purple, yellow, and white. The mouse is a very great enemy to them, but powdered resin will in many instances stop the ravages of this greenhouse nuisance.

The Coronella, a pretty half-hardy shrub, is a great favourite, the flowers, in small clusters of bright yellow, remaining a long time in bloom, with very pretty leaves of a sort of blueish-green colour. There is one peculiarity about this plant: the blossom is fragrant during the day, but at night entirely loses its perfume, forming a decided contrast with the night scented stock, which has not the least fragrance during the day, but exhales it at night.

Our greenhouse pets having been preserved through the dreary months of winter, and those cheerful spring-anticipating plants and flowers having performed their allotted task, we must remove them, to give greater space to those more established and, it may be, more valuable pets that are to make our greenhouse gay to the eye and pleasing to the senses during the months of summer.

In the early summer or late spring, Cinerarias, Calceolarias (of which splendid specimens may be raised from one small packet of seed) succeed; some with a deep maroon ground with white spots, others a pink or flesh ground with dark chocolate spots, so large that in the "pocket," as a child described it once, one might place a fourpenny-piece: "Nature's purse" it should have been named. Roses in pots, which have not bloomed in January or February, will fill the house with their fragrance. The Achimenes and Gloxinias will now be in all their beauty, and the Geraniums that

have been pinched back for later flowering, will now, with their blossoms at every joint, try, and in some cases succeed, in making one believe that they have more bloom than leaves. Most gratifying will it be to the young lady amateur in "greenhouse pets" if this result should attend her constant labour; for such it must be, though a pleasant one. Without care and attention to the removal of all withering leaves, and, above all, an incessant raid on the cause of all withering and premature death of plants—the *aphis*, more generally known as the green fly—constant disappointment will be experienced, and we shall look with regret, combined with pity, on our "greenhouse pets."

### WINDOW PLANTS.

It should not be supposed, however, that it is only the fortunate possessor of a greenhouse who can be gratified with the pleasing sight of flowers in the room during almost every month of the year. With very little trouble and a moderate amount of care, specimen plants may be raised in the dwelling-house for window decoration, equal to and in many respects superior to those that have had the fostering care of the gardener, and the comfort and indulgence of the greenhouse. Almost all bulbs may be raised and obtained in perfection by planting them in pots in September, and putting them away in some spare room with a slate over each pot to exclude the light. They require no heat to force them, and only just sufficient watering to keep the soil from becoming dry. As soon as the leaves begin to show, remove the slate, and place the pots close to the light in some warm room or kitchen, and about the end of December you will be rewarded with a show of beautiful and sweetly perfumed blooms. Thus Hyacinths, Crocuses, Tulips may be procured; and even the Tuberose (the most odoriferous of highly-scented flowers, and a native of India) may be had in bloom if treated in the same manner. The scent of the tuberose is so very powerful, that although to some it may be grateful and agreeable, to others it is most oppressive, therefore it is wise to remove it during the night from the sitting-room, so that you may not inhale the pernicious odour the first thing in the morning. Doubtless many have experienced a sensation approaching almost to nausea on entering a room in which highly perfumed plants have been closely confined during the past night. The best bulbs of the tuberose are imported from Italy. It is better not to risk the possibility of disappointment by endeavouring to preserve the bulb for house culture for two consecutive years: the expense is but trifling of purchasing fresh ones, and newly imported bulbs should be grown for window decoration annually. Those that have been grown in the house during the winter may be planted in the garden the next year, not too close to each other, but some twelve or fourteen yards apart, and they will diffuse a most delightful fragrance during the summer and autumn months. To persons living in or near large towns, or in the neighbourhood of factories from which any unpleasantness may be exhaled, the tuberose will prove most acceptable and welcome as a window friend.



ROSE.

TULIP.

FUCHSIA.

Roses, also, may be grown to a state of great perfection in pots. A few tea-scented, with one or two free-blooming hybrid perpetuals, make a very nice variety in the window many months before they can be obtained out of doors. They should be treated in precisely the same manner as is adopted in the greenhouse. A few of the best roses for summer culture are *Comp d'Hebe*, *Madame Ball*, *Paul Recaut*; among the tea-scented, *Gloire de Dijon*, *Devoniensis*, and *Sofrano* will prove a nice variety. The Lily of the Valley, so well known for its delicious fragrance, may easily be made to bloom in the house by raising a few roots in the autumn, and placing them in pots, filled with rather a dry light soil. If you remove them into the house about the end of November, in the very early spring you will be rewarded with plenty of these elegant, sweet-scented, innocent-looking little flowers.

They who have travelled abroad and ventured into the different foreign market-places on the appointed market days in early spring, cannot fail to have been struck with the splendid specimens of China Asters and Balsams growing in pots. The culture of these is so simple that no one should be without a few of these ornamental annuals in the window. If you sow a few selected seeds (they should be imported ones) in pans about the end of February, and keep them in a warm room or kitchen, the seeds will soon germinate: when the plants are sufficiently large (say about 1 inch in height), they should be pricked out in 4-inch pots, filled with light rich soil, carefully watered, and frequently examined to free them from the destructive attacks of the greatest of all enemies to indoor plants, viz., the *aphis*, which appears particularly partial to the China aster.

The Balsam may also be grown in the same manner, except that when

pricked out from the seed-pan, which should be done when the rough leaves show themselves, they should be placed in small pots, in which they must remain till the roots have well filled them; they should then be shifted into larger ones, until you have them in 4-inch pots. All blooms should be picked off until they receive this last move, which will make them branch out laterally, and also cause them to grow in height. By adopting this method, and with constant watering, we have ourselves grown specimens measuring more than 2 feet in circumference, and about the same in height.

The Yellow Jasmine is a very pretty and easily grown plant in the house, and has the prettiest appearance of all winter-blooming flowers, as its delicate green-coloured stems are covered with rich golden yellow flowers before a single leaf appears. It requires no trouble whatever, further than judicious watering.

Brompton Stocks may also be treated in the same way as the China asters, but two or three of these may be placed in a 6-inch pot, as, should one prove single, it may be removed. Great care should be taken in transplanting these from the seed-pan, as they have a long tap-root which must not be broken. Until they have recovered their removal they should be kept in the shade. The soil in which they will thrive best should be rich, from an old hotbed if possible; they should never be allowed to get thoroughly dry, but be watered every night. Treated in this manner, splendid specimens may be had, with spikes of rich scarlet or crimson flowers from 18 inches to 2 feet in length. It is true this flower is most generally grown out of doors, but there is nothing so gratifying to an invalid devotedly attached to his garden, and yet unable to leave the sick-room for months, as to have a glimpse of the brightness and sweetness of Nature's ornamentation, by the tender hands of those dear to him bringing him each morning one of his favourite plants in bloom, thus relieving him, it may be, of some few moments' sadness, and calling him back (if unhappily his trials should have been severe) to the beauties of Nature, and to Nature's God.

Geraniums should above all plants hold a conspicuous place in the floral decoration of houses, in the summer, autumn, spring, and winter. They may be had in bloom with very little trouble; indeed, treatment the same as described previously for greenhouse pets will ensure a succession of bloom. Some amateurs have lately introduced a fashion of growing Standard Geraniums. To enable you to have a good specimen of these, the plant should be kept growing for two or three years, and as the side shoots appear they should be immediately removed; at the expiration of the third year you will have a perfect tree geranium.

Ferns should also take a conspicuous place in the amateur's collection of flowers or plants for house culture; the foliage is so graceful and elegant that no bouquet is now complete without a mixture of this much sought after and generally cultivated plant. In the ornamentation of tables, too, these plants take a most prominent place. Plant cases (glass cases) may be purchased or cheaply made for the cultivation of ferns, by which the amateur will be relieved of a great amount of trouble in watering hyacinths

or other bulbs. China roses may be planted in one of these cases—in fact, any plant, according to fancy—in the latter part of October: they will commence blooming in January, and will not have required the least attention from their fortunate possessor until they have done blooming, and fresh plants are introduced in their stead. The soil being thoroughly saturated, will require no additional watering for months. By paying attention to the above simple directions, it is to be trusted that many young ladies, not enjoying the luxury of a greenhouse, may have a display of plants and flowers in bloom that will bear comparison with, and perhaps excel, “our greenhouse pets.”



## BOTANY.

“There is religion in a flower:  
Its still small voice is as the voice of conscience.  
Mountains and oceans, planets, suns, and systems,  
Bear not the impress of Almighty power  
In characters more legible than those  
Which He hath written on the tiniest flower,  
Whose light bell bends beneath the dew-drop's weight.”

It has been said that “Botany is only to be learned in the fields.” Very true; but then we must carry into the fields a certain amount of knowledge, by no means difficult of attainment, and of a most attractive character. The term Botany is derived from a Greek word signifying herb or grass; it is the science which treats of the structure and properties of plants, and teaches us how to distinguish them one from another. There are many facts connected with a knowledge of plants, which are not only interesting but

very useful. I will just show you what I mean. Samphire (*Crithmum maritimum*) grows wild on the sea shore, but is *never* covered by the water. A French vessel was driven ashore near Beachey Head some years since, and the whole crew washed overboard; four escaped by climbing to the top of a heap of rocks. They expected to be swallowed up by the waves every moment. At length one of them found a plant which he knew to be samphire; then they were convinced that the tide would not touch them, and waited patiently, until, at daybreak, they were seen and rescued by some people on the cliffs.

It is mentioned in Lord Anson's "Voyage Round the World," that the surgeon was so afraid of the effects of new and strange herbs upon the men, that he would sometimes forbid the use of all kinds of vegetable food except grass. Let us hope that this would not be the case at the present day. The great Crowfoot family (*Ranunculacæ*) consists of the burning and blistering species. The Poppy produces stupefaction. The Umbelliferous tribe is chiefly aromatic, but not always to be trusted. Geraniums are astringent; Myrtles fragrant and aromatic; Evening Primroses insipid. While no plant belonging to the great family of the *Cruciferæ*—*i.e.*, cruciform or cross-bearing, having four petals placed so as to resemble a Maltese cross—is poisonous. As in all other sciences, so in Botany, there are certain terms which must be understood and remembered, and a habit of observation must be acquired without which the differences between one plant and another can never be remembered or appreciated. I dare say you already know that plants generally have *five* very distinct parts—root, stem, leaf, flower, fruit. Let us examine them. We will begin with the *root*: this is the organ which supplies the plant with food; it is generally buried in the ground. Roots are sometimes *simple*, long and taper, as in the Carrot, Parsnip, and Radish, sometimes flattened bulbs, as in the Turnip; *branched*, *i.e.*, consisting of one principal stem sending out branches, and these again dividing into smaller (most trees and shrubs have branched roots); or *fibrous*, *i.e.*, consisting of a quantity of long thin fibres, of different lengths and thicknesses, having still finer rootlets springing from them, as Wheat, Barley, and most of the grasses. The root of the Bladder-wort (*Utricularia*) has small hollow bubbles upon it. The Cyclamen and Dahlia have fleshy roots composed of one or more lobes; the Hyacinth, Lily, and Onion have bulbs, furnished with a flat base, and sending down fibrous roots. Some of the Orchids have roots consisting of two fleshy knobs: one is produced in the summer, and bears the stalk and flower the following year, when the old one withers and dies, and a new one begins to grow again. Some few plants there are, which, instead of deriving their nourishment from the earth, fix themselves on the trunks and branches of other plants, and live on their juices, as the Mistletoe (*Viscum album*), and the Dodder (*Cuscuta*). In the progress of decay some roots emit a phosphorescent light; the Potato in a state of putrefaction shows so strong a light that, it is said, you might read by it; and a story is related by Professor Lindley, (I think,) that an officer who was on guard at a barrack near Strasburg, thought during the night that the building was on fire, and upon examination found that the vivid light came from a heap of

potatoes in the cellar. This sort of light is also emitted by certain kinds of wood in process of decay.

From the root rises the *stem*. This part of a plant is so well known that we will simply remark that the stems of trees and shrubs are *woody*; of plants *herbaceous*; *smooth* in the Guelder Rose, Valerian, Periwinkle; *spiny* or *prickly* in the Rose and Bramble; *hairy* in the Foxglove, Geranium, &c.; *woolly* in the Mullein; *spotted* in the Hemlock; generally round, but *square* in the Mint and Lavendar; *angular* in Nightshade and Agrimony; *winged* in Sweet and Everlasting Peas. The stem of the Dodder is like red thread: you may see yards of it twisting and twining itself round Nettles or Furze in the autumn, so that it looks like a tangle of red hair. It has a beautiful blossom, and no leaf.

From the stem spring the leaves: very useful are they, and very beautiful, infinitely various in shape, and of every shade of green; for green is the rule as to colour; brown, crimson, purple, or silvery hues, the rare exceptions.

The business of the leaf is to suck out of the stem the watery food which the stem has sucked from the root, and the root from the soil; and having exposed it to the light and air, and in a manner digested it, to return it back into the stem; as sugar in the sugar-cane, flour in the Potato, quinine (so invaluable to some of us) in the Chinchona. Leaves are, in fact, organs "of respiration, absorption, and evaporation." The arrangement of the veins is of two kinds—each characterizes a great class of plants. Take a leaf from a Lime or Beech or any of our timber trees: you see a principal vein runs through the middle of it; from the sides spring other veins, and from them others still finer, till the whole surface is a wonderful network; and this is not all, for every leaf has two sets of veins, one over the other. This is very noticeable in the Sea Holly (*Eryngium maritimum*) and in many others, after being long soaked in water. The other arrangement of veins is to be found in the grasses, Iris, and suchlike plants. Here you see the veins run side by side without touching, except at the base and point of the leaf. Take an Iris leaf, or a leaf of the great White Lily, break it, hold it to the light, and what do you see? if you have done it cleverly you will see that every vein is spiral, white and silky, fine as the spider's web, and so tightly twisted that you may stretch the broken leaf apart without snapping these beautiful threads. This arrangement gives elasticity to the leaf. The *Dionaea*, a North American plant, has leaves which can close together, and are covered with stiff hairs; the instant an insect alights upon it, the two halves fold together and kill it, so it has gained the name of Venus's fly-trap. The Sundew, a lovely little plant found on moist heaths in England, possesses the same property, but in a less degree: its crimson-tinted leaves are covered with red hairs, which secrete from their tips a drop of clear fluid, of a sweetish taste, which gives the leaves the appearance of being covered with dew-drops. Real dew, you know, disappears when the sun has risen, but when the sun is highest the leaves of the *Drosera* are brightest, hence its popular name. I pray you not to lose an opportunity of examining one of these hairs under a microscope. My space will scarcely allow me to

describe what you will see, but sure I am that you will be beyond measure astonished at its wonderful construction. The Sundew is an ingredient in the famous Italian liqueur called *rossoli*, and in bygone days it was highly esteemed by country maidens as a cosmetic.

The leaves of the Mimosa are highly irritable: on the slightest touch they close themselves up in pairs; if you repeat the touch the whole leaf will droop as if dying, and some time elapses before it resumes its natural position. The leaves of the Acacia droop towards night, and rise up at day-break. In the Bladder Senna the reverse takes place. The leaves of the Trefoil fold themselves up before rain. The *Oxalis*, the most sensitive of British plants, droops and folds its triple leaflets at the approach of the evening dews. The *Hedysarum gyrans*, or Moving Saintfoin, has the singular property of moving its leaves without being touched; sometimes one will move, while the rest are still; the two lateral leaflets are in almost perpetual motion, turning abruptly and irregularly; if you hold them quiet by force, on being released they move with increased rapidity, as if to make up for lost time; and it is said that when detached from the plant they still retain their power of motion. This saintfoin is cultivated in England, but its *habitat* is on the banks of the Ganges, near Bengal.

It has been well said that "stars are the flowers of heaven, even as flowers are the stars of the earth." Flowers are friends that change not; they bloom alike for young and old, rich and poor, and to every true heart are messengers from heaven telling us that "God is love." Mrs. Howitt has well sung:

"God might have made the earth bring  
forth  
Enough for great and small,  
The oak tree, and the cedar tree,  
Without a flower at all.

"He might have made enough—enough  
For every want of ours,  
For luxury, medicine, and toil,  
And yet have made no flowers.

"Then wherefore, wherefore were they  
made,  
All dyed with rainbow light,  
All fashioned with supremest grace,  
Upspringing day and night?

"Springing in valleys green and low,  
And on the mountain high,  
And in the silent wilderness,  
Where no man passeth by?

"Our outward life requires them not;  
Then wherefore had they birth?  
To minister delight to man;  
To beautify the earth;

"To whisper hope, to comfort man  
When'er his faith is dim;  
For whoso careth for the flower,  
Will care much more for him!"

Mrs. Hemans declared that the love of flowers was the only passion which long sickness left untouched with its chilling influence.

It is in the flower, then, that the chief beauty of the plant is found; and the names of its different parts must be learned and remembered before we can make much progress in botany. So, let us take a Wallflower or (as a botanist might be expected to call it) *Cheiranthus cheiri*: this green part outside is the *calyx* or flower-cup, each division is called a *sepal*, and those yellow leaves are the *petals*, which together form the *corolla*. Take off the petals; we have now six threads with golden heads: these threads are *filaments*, the heads are *anthers*; the two together make the *stamen*. In the middle of these six stamens is the *pistil*, consisting of three parts: the



*germen* is the lowest, the *style* or small stalk next, and the *stigma* the uppermost. As the flower fades the *germen* grows larger, and it is then called the seed-vessel or ovary: in the Wallflower the seed-vessel is a long pod called the *siliqua*. The wallflower, you see, is one of the great family of the *Cruciferae*, the four petals being placed so as to resemble a Maltese cross.

Papilionaceous or butterfly-shaped flowers are easily recognized. The Sweet Pea, the Bean, Vetches, Trefoils, as well as the Laburnum, Furze (*Ulex Europæus*), Broom, and its first cousin—Dyers' Green Weed, the *Planta genista* of historic interest—all belong to this order. Then there is a large tribe bearing labiate or lip-shaped flowers: to it belong the Mints, Dead Nettles, Salvia, &c. The Orchis tribe has remarkable flowers; in many species resembling insects, and named accordingly; as the bee, the fly, the butterfly, the spider; not forgetting those that bear a fanciful resemblance to the man, the monkey, and the lizard.

A large number of plants have *composite* flowers. Take the Daisy,—the *Marguerite* of French, the *Margheritina* of Italian children:—each of those little yellow things in the middle is a flower or floweret. The Dandelion (*Leontodon taraxacum*), Thistle, Coltsfoot, and a great many wild flowers, are formed in the same way; among them Succory, the Chicory of commerce, and “the gem of the harvest coronel”—the blue *Cyanus*. Before we bid adieu to the flowers we must first examine the Fig. The history of this tree is curious; it was a long time before it was known how it was propagated. But where are the flowers of the fig? you will inquire. You can see nothing but a thick, oval, green body, which you know will turn to fruit, and which therefore ought to be the flower. Linnæus and Lindley are agreed here: let us see what the latter says about it: “The dark green body is a hollow box or receptacle; within it, in darkness and obscurity, are reared the flowers, which, like the beggars’ children in the caverns among the fortifications of Lille, are so deformed and pallid as to be hardly recognized. Cut a young fig open; the whole of the inside is bristling with flowers, some with five stamens only, and the others with a jagged calyx, and a little white pistil sticking up in the middle. This pistil, when ripe, becomes a brown grain, which is lost among the pulp of the fleshy, juicy receptacle, where you eat it and call it a seed.” The juice of the fig is milky; it is unfit to eat in its unripe state, for the milk is acrid; but when ripe all the milk has dispersed, and it becomes the wholesome and pleasant fruit with which we are acquainted. “In most cases it is the flower that contains the fruit; but this is a rare exception, for the fruit encloses and conceals the flower.”

Let us now talk a little about the last part of a plant which we have to consider—the *fruit*. By this term we do not mean Gooseberries and Currants, Apples and Pears only, but “any part which contains the seed; so that the grains of corn, the heads of the Poppy, the nuts of the Filbert, the little Caraway seeds, are all different kinds of fruit.” The fruit, then, is the ovary arrived at maturity: it is composed of two parts—the seed-vessel and the seed. In the apple and pear the pulp is the seed-vessel, the pips are the

seed; what we called the eye of the fruit is composed of the withered sepals of the calyx, and what we call core is formed by the cohesion of several pistils. In the Strawberry, the sweet soft part is the receptacle, and the seed is inside—those little hard grains which are scattered over its surface. The Raspberry and Blackberry differ from the strawberry in this way: there is a dry white core, off which you pull the thimble-shaped fruit; there are no dry hard seeds sticking over it, as in the strawberry; but look more closely—what are those little dry threads? Surely they are styles; and if so, the projections out of which they grow must be carpels in a ripe state. This is really the case. Lindley says, "The carpels of the raspberry, instead of remaining dry as they become ripe, swell and acquire a soft pulpy coat, which in time becomes red; they press upon each other, and at last grow together, forming the conical fruit you eat. In order to gain this succulent state they rob the receptacle of all its juice, and in the end separate from it; so that when you gather the raspberry, you throw away the receptacle under the name of core, never suspecting that it is the very part you have just been feasting upon in the strawberry. In the one case, the receptacle robs the carpels of all their juice and becomes gorged at their expense; in the other case, the carpels act in the same selfish manner upon the receptacle." The number of seeds produced by some annuals is surprising. More than 30,000 are said to have been found in a single head of Poppy. Each spike of the Cat's Tail (*Typha major*) bears about 40,000 seeds, so that upon the three spikes which this plant usually produces there are about 120,000 seeds annually. Very wonderful, too, are the various methods provided to ensure their being sown. The Arum seed is small, and heavy enough to fall into the ground when the seed-vessel opens; so they spring up and grow without further care close to the parent plant. Others are large and light, and are often furnished with little hooks to prevent them from straying too far. Some have wings, so that when ripe they are carried to a distance, as the Ash and Maple. Others, as the Dandelion, Thistle, and Lettuce, have "plumy seeds," feathery appendages, called "pappus," which waft them far and near. In the Horned Poppy (*Chelidonium glaucium*) the seed-vessel is a pod, which lengthens out into a curved horn. I have a specimen which I gathered on the beach in St. Margaret's Bay, near Dover, at least 10 inches long: though so different from the rest of the poppies in this respect, like them it is highly poisonous. In the Crane's Bill (*geranium*), which gets its name from the resemblance of the seed-vessel to the beak of that bird, we find this peculiarity: there is great elastic power in the seed-pod, which enables it to throw out the seed with force. It contracts in dry weather, and expands in wet; each carpel bends outward and contracts again above. The whole thing much resembles a Chinese pagoda in miniature. Again, one of the Balsam family, the *Noli-me-tangere*, has seed-vessels which burst at the slightest touch, and scatter the seeds to a great distance.

And now, having glanced at the structure of plants, let us consider their arrangement. The natural orders serve but to teach us the structure of plants, while artificial orders enable us to distinguish one plant from

another, or to find their places in the arrangement. Linnæus; whose system is very generally adopted in England, distributed all plants in twenty-four divisions, called classes, and each class he subdivided into orders. The first eleven are distinguished solely by the number of stamens. The twelfth and thirteenth differ from each other with respect to the situation of the stamens. In the fourteenth and fifteenth proportion is employed, two long and two short stamens, four long and two short. The sixteenth, seventeenth, and eighteenth have united filaments in different ways. The nineteenth and five following are founded upon various circumstances. The twenty-fourth class consists of plants "having flowers of which the stamens and pistils are either not well ascertained or cannot be numbered with certainty, so that they cannot be referred to any of the preceding classes, and are invisible to the naked eye." As the first thirteen classes are distinguished by their stamens, so the orders or subdivisions of these classes are regulated by the number of pistils. *Monogynia*, one pistil; *Digynia*, two; and so on. In the fourteenth class the orders are two, and depend upon the seeds being contained in seed-vessels or not; they are *Gymnospermia* or uncovered, *Angiospermia* or covered. The orders of the fifteenth, *Tetradynamia*, are also two; the one, *Siliculosa*, has broad short pods; the other, *Siliquosa*, has long narrow ones. In the sixteenth, seventeenth, and eighteenth classes, the orders are known by the number of the stamens. The nineteenth class has five orders, and rather puzzling a beginner finds them; so for the present we will leave them, and also those of the next four classes. The orders of the twenty-fourth, *Cryptogamia*, are five in number, and wonderfully interesting they all are: 1, *Filices*—Ferns; 2, *Musci*—Mosses; 3, *Hepaticæ*—Liverworts—these bear some resemblance to mosses; 4, *Algæ*, which includes Lichens and Seaweeds; 5, *Fungi*.

I should just add that Linnæus subdivided "the orders into genera, and the genera into species;" the former agreeing in the structure of their fruit and flowers, the latter in characteristics taken from any or all parts of the plant. We have but few English plants in the first class, and the flowers are very small and difficult to distinguish, so we will pass on to the second class, *Diandria*. There are plenty of attractive wild flowers in this class; perhaps the Veronicas—of which we have nineteen species—are the most so. Let us take the Germander Speedwell (*Veronica chamaedrys*). It is known from the others by the bunches of flowers rising from the side of the main stem. The calyx has four divisions, each of them sharply pointed, the blossom is of one petal, with four divisions, the lowest narrower than the rest. Stamens, two, and pistil, one; the first proving the class, the second the order. The leaves are egg-shaped, and sessile or sitting, *i.e.*, having no little stalks of their own. The stem has through its whole length two hairy lines, one on each side, and taking different sides above and below each pair of leaves. The young leaves are thickly covered with down: on this, Grew, an English botanist, who lived about 1660, observes, "They seem to be vested with a coat of frieze, and to be kept warm like young and dainty chickens in wool." To this class belong the Butterwort, Gipsy-wort, Enchanter's Nightshade, and some others.

The third class, *Triandria*, contains the Grasses—Valerian, Crocus, Iris, &c. In the fourth, *Tetandria*, four stamens equal in height, we find the Galiums, Plantains, Pondweeds, also the Holly (*Ilex aquifolium*). The Latin name means needle-leaved. The English name is said to be a corruption of *holy*, from its use as a Christmas decoration in our churches; and it is a curious fact that the lower branches within the reach of cattle bear thorny leaves, while the upper, not needing such a defence, generally have smooth ones. Southey noticed this, and wrote,

"Below, a circling fence, its leaves are seen,  
Wrinkled and keen,  
No grazing cattle through their prickly round  
Can reach to wound;  
But as they grow where nothing is to fear,  
Smooth and unarmed the pointless leaves appear."

The flowers are clustered and small, and of a creamy white colour tinged with a reddish shade of lilac, the blossom of one petal with four divisions. The calyx is four-cleft; the germen roundish; styles none; stigmas four; seed-vessel a hardish berry, four celled, each cell containing one seed. The wood of the holly is hard and white, and is much used by wood engravers, and some of the Tunbridge ware is made of it. The viscous substance in the bark is converted into bird-lime, and upon its tough leaves feeds the caterpillar of one of our loveliest butterflies—the azure blue *Papilio argiolus*.

The fifth class, *Pentandria*, is a very large one. In its first order we have the lovely Marsh Trefoil or Bogbean. The flowers grow in bunches, are white tipped with red, and are beautifully covered with hair: by these and a triple leaf it may be readily known. Also the Primrose, *Primula vulgaris*, *Frühlings Blume*, as the Germans call it; and indeed it is almost hallowed to us by happy memories of bygone days. Let us take care that Wordsworth's lines never apply to us—

"A primrose by the river's brim  
A yellow primrose was to him,  
And it was nothing more."

Let us see to it that they be a great deal more to us—these

"Pale gems of spring."

Its second order, *Digynia*, is composed of Umbelliferous or Umbellate plants, so called from the umbels in which their flowers are disposed. Let me explain: "From the top of a straight stalk, there grow several small ones, which spread out like the wires inside an open umbrella. Each set of spokes forms what is called an umbel, and every spoke is terminated by another little umbrella or umbellule, which consists of a number of smaller stalks, with a single flower at the end of each." The common garden Parsley is a very good example. Most of these plants are remarkable for their use as food or medicine, or else for their poisonous qualities. The roots of most of those which grow in dry soils have a spicy smell and taste, while in moist situations or in water they are nearly all poisonous. The Water Cowbane is one of the most virulent of vegetable poisons. Linnæus mentions, in his "Lapland Tour," that he was told of a disease among the cattle at Torneo, which killed a great many when they were first turned out:

to grass in the spring, and which the inhabitants could not account for. He examined the place where the cattle had fed, and found it to be a marsh in which the *Cicula virosa* grew in abundance, so by pointing out the plant he enabled the people to guard against the danger in future. In the summer the plant acquires a strong smell, and the cattle carefully avoid it.

The Water Hemlock and Water Parsnip are also very poisonous; while the Carraway, Parsnip, Carrot, Coriander, and Angelica are all useful. The angelica is, or used to be, cultivated in great quantities near London, for the use of confectioners, who make a sweetmeat of the stalk. The common Flax belongs to the order *Pentagynia*. It is said the plant originally came from Egypt, but it is now found wild in some parts of England. Its Latin name, *Linum usitatissimum*, signifying *most useful*, is well deserved. We are indebted to it for linen, oil, &c. Its pale blue flower is very frail, and falls off at the least touch.

In the sixth class, *Hexandria*, we find the Snowdrop, Narcissus, Tulip, Lily of the Valley, &c.

The seventh, *Heptandria*, contains but one English plant, the Chickweed Winter Green, and it is but rarely found with us. It has a cluster of white flowers rather resembling the Wood Anemone. The Horse Chestnut, a native of Northern Asia, belongs to this class. We all hail the fresh green leaves as a harbinger of spring, and admire the ready-made bouquets with which it is adorned in May.

The ninth class, *Enneandria*, has also but one English plant, the *Butomus umbellatus*, Flowering Rush or Water Gladiolus. The old writers term it the "grassie rush," and one of them, Gerarde, I believe, says, "It is of all others the fairest and most pleasant to behold, and serveth for the decking and trimming up of houses, because of the beautie and braverie thereof." Its flowers are of a delicate pinkish hue, sometimes tinged with purple, and they grow in a cluster at the top of the stem. The sharp edges of the leaves cut like a razor, and often, like the American Pampas-grass, wound the mouths of cattle.

We will now pass on to the twelfth class, *Icosandria*, distinguished by having twenty or more stamens inserted into the calyx. To this belongs the great natural order *Rosaceæ*, which includes the Rose, the Strawberry, the Bramble, the Pear, Apple, Medlar, and the Quince; the Hawthorn—a fruited bush of which was the device assumed by the House of Tudor; the Mountain Ash or Rowan tree. There are nineteen English varieties of the Rose, and ten of the Bramble.

The thirteenth class, *Polyandria*, is known, as you will see on referring to the table, by "having twenty or more stamens inserted into the receptacle." Here we find the Poppy and the Water Lily, which

"To the light  
Her chalice rears of silver bright."

Among the foreign specimens of this class we may notice the Tea tree, the Levant Caper bush, the Egyptian Lotus, the Sacred Bean of India, and the curious Side-saddle flower of North American swamps. The singularity of this flower consists in the stigma being spread over the stamens

like an umbrella. The leaves are capable of holding water, and are resorted to by birds and animals in dry weather.

In *Didynamia* proportion is employed; two long and two short stamens are its distinctions. The fragrant Ground Ivy, also called Ale-hoof, Tun-hoof, and Gill-by-the-ground, is a good example. The calyx is small; the petals of a greyish blue—the upper one slightly notched in the middle, the lower lip large and turned down; two long stamens; each anther two-cleft, and so arranged that they meet and form a little cross, and below these the two shorter ones are arranged in the same way; the pistil thread-shaped and cleft: four seeds are seen at the bottom of the cup without any covering, so the order is *Gymnospermia*. The whole plant is fragrant, and was in high medicinal repute in Queen Elizabeth's time; and even now an infusion is valued as a cure for coughs.

In *Tetradynamia* we have four long and two short stamens, and four petals. The great Cruciform family belongs to this class, all, as we said before, "good for food," and some useful for medicine. There is perhaps no family of plants whose uses are wider spread; and these cross-bearing flowers should, I think, teach us to raise our thoughts to Him by whose death on the cross the curse of suffering and the sting of death are taken away. This class numbers about seventy English specimens, and its two orders are readily distinguished by the shape of the seed-vessel—the first, *Siliculosa*, a broad short pod; the second, *Siliquosa*, a long narrow one.

Let us pass on to *Monodelphia*: in this we find the filaments of the stamens united in a tube: the Stork's Bill (*Erodium*), the Crane's Bill (*Geranium*), and the Mallow (*Malva*) belong to this class. We will just examine the common Mallow (*Malva sylvestris*). This flower has a double calyx; the outer one (sometimes called the *involucre*) with three divisions, the inner of one sepal with five divisions: "the blossom is composed of five heart-shaped flat petals, united at the bottom to the tube formed by the filaments. The middle of the receptacle rises like a little pillar, and the seed-vessels, which are generally eight in number, with one seed in each, stand round it in a circle." The stamens are a very pretty object under the microscope; so are the seeds, familiarly called "cheeses" by English and "*fromageons*" by French children. The plant was cultivated for food in bygone days; it still has a medicinal value.

In the seventeenth class, *Diadelphia*, the filaments are united in *two sets*; at any rate, this is the character given it by Linnæus: some few flowers, however, have the filaments united in one set, while the second set is represented by a solitary filament; but in doubtful cases the shape of the flower comes to your help, for all *Papilionaceous* (butterfly-shaped) flowers belong to this class. "In flowers of this shape the number of stamens is generally ten, which sometimes are all quite distinct, and then of course the plant belongs to *Decandria*; but whenever you meet with a flower shaped like a butterfly, if *any* of the filaments are joined together, be sure it belongs to the class *Diadelphia* of Linnæus."

In the class *Polydelphia* I must just ask you to bear in mind that the filaments are often so much separated that, unless you examine them quite

to the bottom, you might suppose they were distinct. The family called *Hypericum Tutsan* (St. John's Wort), known and revered in our childhood's days as the Rose of Sharon, belongs to this class; and among its foreign members we find the Chocolate tree of South America, the Orange, Lemon, and Citron of sunny Italy.

To *Syngenesia* belong what we have already described as composite flowers, and a large and puzzling family they are. The Daisy, the Dandelion, the Goatsbeard, the purple variety of which (*Tragopogon porri-folius*) is the herb we know as Salsify, the Hawksbit (*Apargia*), Hawkweed (*Hieraceum*), Hawksbeard (*Crepis*), and many others, are here. The Thistle, of which there are about twelve varieties, some of which, as the Musk Thistle, with its perfumed flowers of crimson and purple, are very pretty. The Woolly-headed Thistle (*Enicus eriophorus*) is very curious; its leaves are bristly above and woolly below, and the bracts forming the involucre look as if they were full of cobwebs. But, curious and beautiful though they be, they are at once a type of idleness and sin: neither is the floating seed without a lesson; it is always ready to fall on unoccupied ground, and "fill with evil that which before was only guilty of emptiness." There is one other family I must mention—the Cudweeds (*Gnaphalium*): the mode of growth of the common cudweed is singular; a globular head of blossoms terminates the stem, and from beneath this head spring two or more branches, each with a head of flowers at the points, all rising above that which terminates the main stem; so Gerard called it *Herba impij*, "because it gives the idea of children undutifully disposed to exalt themselves above their parents." Another branch of this family are the well-known *Immortelles*.

To *Gynandria* belong the curious family of Orchids, whose remarkable flowers we have already noticed.

To *Monæcia* belong the Spurges (*Euphorbia*), a large and peculiar family, varying from shrubs 2 or 3 feet high to plants of scarcely as many inches. They are chiefly poisonous. The fishermen of Kerry stupefy the fish in their river by throwing in baskets of Irish spurge. The blossoms are generally of a yellowish green. The ascents to the castle at Nice are literally clothed with a large shrubby variety of spurge, and at the end of March it is a mass of blossom. The Manchincel tree, whose sap is used by the Indians for poisoning their arrows, the Bread-fruit tree of the South Sea Islands, the Sago Palm of the East Indies, all belong to *Monæcia*. Castor oil, Croton oil, India rubber, and vegetable tallow are all procured from trees of this class. The Cypress (*Cypressus sempervirens*), whose wood rivals the *Deodora* of the Himalayas in durability, is also of this class: the island of Crete is its chief home, and, though growing in abundance, these trees are so valuable that one is reckoned a daughter's portion. Some mummy chests are found to be of this wood; the doors of St. Peter's were originally of cypress, and when replaced with brass gates, at the end of 600 years, the wood was found to be in perfect preservation.

To *Diæcia* belong the Willows, the Poplar, the Hop, and the fragrant Dutch Myrtle or Sweet Gale (*Myrica gale*). It is used in Sweden instead

of hops, as a dye, and as a medicine. When the plant is boiled a kind of wax rises, of which tapers are made; they are very fragrant while burning, and are constantly used in the royal household of Prussia. Here, too, is one of our prettiest climbers, the Black Bryony (*Tamus communis*), with its heart-shaped glossy leaves, its long clusters of tiny green flowers, followed in autumn by masses of bright red berries.

To the twenty-third class belong the Braches (*Atriplex*), of which there are some six or seven varieties. Among the foreign belongings of *Polygamia* we note the Plantain tree (*Musa Paradisiaca*), the Sensitive Plant, and the Fig.

Pass we on to *Cryptogamia*, and standing on the threshold of its first order, *Filices*, we must learn a few fresh terms. The leaves are called *fronds*; the *stipe* is that part of the stalk of the frond which raises it from the ground; *sori* are the masses or groups of capsules on the back of the frond; *indusia* are the membranous coverings of the sori; *spores* are the minute seed-like bodies contained in the sori: these cases and their contents are collectively called the *fructification*. In a popular way a Fern may be described as a "flowerless plant." Examine the under side of a frond in a full-grown plant: it is covered with patches or elongated lines of—what? Why, of vast accumulations of minute seeds; and the shape of the sori and of the indusia helps to determine the species. The known uses of ferns are few, their acknowledged beauties many. The *Osmunda regalis* is sometimes used instead of starch. The *Ophioglossum* (Adder's Tongue) is gathered by country people to make an ointment for bruises. The Maiden-hair is used to make *capillaire*. The Bracken and the *Lustrea Felix* mas are employed in the manufacture of soap and glass, and sometimes in dressing leather. The Polypodies (*Polypodium*) may be known by the large circular patches of golden spore cases, no other English fern having a fructification at all resembling it: you will find them on the stumps of trees, old palings, rocks, and walls: the fronds remain green all the winter. There is a Welsh and Irish variety of this fern. The Mountain Polypody or Beech Fern, the smooth Three-branched Polypody or Oak Fern, and the Limestone Polypody are all pretty and delicate, and by no means common. The Shield Ferns (*Polystichum*) form a distinct group of evergreen Ferns; they are all beautiful. The *Lustrea* or Buckler Ferns are very elegant; here we find the *L. Cœnula* or Hay-scented Fern. To the genus *Athyrium* belongs the Lady Fern with its pale green fronds, loving shaded moisture.

"Where the copsewood is the greenest,  
Where the fountain glistens sheenest,  
Where the morning dew lies longest,  
There the lady fern grows strongest."

The Spleenworts (*Asplenium*) are all small evergreen ferns, extremely pretty, and some of them rare. The *Scolopendrium* (Hart's Tongue), with its broad glossy fronds and its oblique lines of fructification, stands in great contrast to the feathery character of ferns in general; there are some curious and distinct varieties belonging to it. You cannot fail to recognize the *Ceterach* (Scale Fern), for the backs of the fronds are densely covered with brown, pointed, chaffy scales; nor the *Blechnum* (Hard Fern), for no other English



fern has its fructification "in extended lines lying parallel with the mid-rib." The *Pteris* (Bracken or Park Fern) clothes acres of what would otherwise be waste ground: under favourable circumstances it attains the height of 3 or 4 feet; it is very impatient of cold, and the first frosty night pinches it: the young shoots closely resemble asparagus when cooked. The *Adiantum Capillus-Veneris* (Maidenhair) is perhaps the most graceful of English ferns: you may know it by its fan-shaped branches and its little black hair-like stalks, though these are not its proper distinctive marks; they, as we said before, lie in the sori and indusia. It is found in Devonshire, but not plentifully, and prefers caverns just within reach of the sea spray. The species *Cystopteris* (Mountain Bladder Fern) numbers many small, beautiful, and fragile ferns. The *C. montana* is considered our rarest fern; it is found among the Breadalbane mountains in Scotland, in very wet and shady places on the ledges of rocks. The *Trichomanes* (Bristle Fern) is also rare; you may recognize it by its "pellucid fronds with a delicately crisped appearance." The Filmy Ferns (*Hymenophyllums*) are moss-like plants, the smallest of our native ferns: we have but two species—*Tunbridgensis* and *Wilsonii* or *Unilateralis*. The *Osmunda regalis* well deserves its regal honours, for it is our most majestic fern, growing often to 6, 8, and 10 feet high. By this, and the fact of the fronds being entirely leafy in the lower part and entirely fertile in the upper, you will easily know it: the stipes of the young fronds are of a reddish hue.

The Moonwort (*Botrychium lunaria*) is a small and distinct variety; its frond has two branches, one of which is leafy, and the other a mass of fructification. No other English plant has such peculiar features. It is very shy under cultivation. The Adder's Tongue (*Ophioglossum*) is first cousin to the moonwort. Its frond is a fleshy-like leaf, about 4 inches high, and the fructification is a small green tongue consisting of two lines of crowded spore cases. It has a dwarf brother, *O. lusitanicum*, only found in Guernsey, so far as we know at present.

The Mosses (*Musci*) form the second order of *Cryptogamia*. Their structure is very curious and beautiful: they have roots and leaves of simple forms, but the fruit is very different from that of other plants. Small threads, like filaments, rise from the midst of the leaves, and support little round bodies, which are really the capsules which contain the seed; they (the capsules) are hollow, and are furnished with what is called a *calyptra*, or veil, something like an extinguisher. The mouth of the capsule is surrounded by a fringe of great delicacy, and of surprising regularity in the number of teeth that compose it. The genera of mosses are decided by these teeth (which are four, eight, sixteen, thirty-two, and so on), and by the situation of the capsule. Mosses are less impatient of cold than any other plants. They are of great service to the inhabitants of the Polar regions. The Laplanders use the Golden Maidenhair (*Polytrichum commune*) for beds; it is very elastic and does not easily get hard; but when such is the case, its elasticity is restored by dipping it in water. The women use the soft grey Bog Moss (*Sphagnum palustre*), which is like thick fur, to wrap their children in. Another moss, *Lycopodium clavatum*, has seeds which are highly com-

bustible, and are used for producing the appearance of lightning on the stage. Mosses possess the singular property of reviving when put in water after being kept in a dry state for years, and their functions are then as vigorous as ever. In the economy of Nature mosses are of great importance; they often constitute the first vegetation of new ground, and at length cover the naked surface with vegetable soil. "In elegance and delicacy of colouring they are surpassed by few *Cryptogams*, and taken collectively they often give a tone to the colouring of rocks and foregrounds, which the eye can at once appreciate. Even some of the smaller species, when in fruit, and lighted up by a partial sunbeam, are exquisitely beautiful from their red and olive tints. To see their full beauty we must examine them through a microscope, for, unlike the works of man, God's works are always perfect, and most admired when most carefully examined."

The Liverworts (*Hepaticæ*) somewhat resemble the mosses. You occasionally find the *Marchantia* on damp stones; beholding it under a good glass, you will exclaim, "It is a tiny green nest, with two tiny eggs in it!"

The *Algæ*, the fourth order, consists of Lichens and Seaweeds. Lichens commonly grow in fleshy or leather-like patches, of all shades of greys and browns, on the stems of trees, palings, &c. The Reindeer Moss (*Lichen rangiferous*) forms the principal food of the reindeer; it is of a whitish colour, and grows about a foot high. The Iceland Moss (*Lichen Islandicus*) is useful for food. The Dyer's Lichen, which is found in the Canary Islands, is used for dyeing purple and crimson. Cudbear, which is prepared from the *Lichen Tartareus*, is used for woollen dyeing, but it will not give up its colour to a vegetable substance. Seaweeds derive their nourishment through their surface, their roots only serve to fasten them to the bottom, and many float about unattached. Some varieties attain a remarkable size: the *Fucus giganteus* is said to extend to the length of 1,000, or 1,500 feet, and grows in such profusion that the masses resemble islands. In the tropical latitudes of the Atlantic, Pacific, and Indian Oceans, there are vast tracts of seaweeds; one especially is called by sailors the "Grassy Sea." In China the *Fucus tenax* is used as glue and gum arabic are with us.

Ferns have been the fashion for some years: not so Fungi; and yet they are a most curious and interesting family—useful, too, for many are edible, though, beyond Mushrooms, Morels, and Truffles, this is scarcely more than a recognized fact. Marvellous are the stories about the rapid growth of fungi. Dr. Carpenter relates the following: "The town of Basingstoke was paved some years ago, and not many months after the pavement was observed to exhibit an unevenness which could not be accounted for. In a short time the mystery was explained, for some of the heaviest stones were completely lifted out of their place by the growth of large toadstools beneath them: one of the stones weighed 83 lbs., and the resistance offered by the mortar which held it in its place would probably be a greater obstacle than the weight." The forms which fungi assume are Protæan. "In some species it is a cup, in others a goblet, a saucer, an ear, a bird's nest, a horn, a bunch of coral, a button, a rosette, a lump of jelly, a piece of velvet." In colour they are almost as variable as in shape; in one or two instances

only, decidedly green; but we have "all shades of red, from pink to deep crimson and scarlet, all tints of yellow, from sulphureous to orange, all kinds of brown, and every gradation between pale grey and sooty black." Blue and violet tints, and a beautiful amethyst, occasionally occur; white and creamy tints are common.

Some fungi exhale intolerably disagreeable odours, as the *Clathrus*—which is very rare and very beautiful, resembling a spherical lattice-work of coral—and the *Phallus*. This is not universal, for some have the scent of freshly mown hay, some of violets, some of walnuts, and the little yellow *Chantarelle* has the perfume as well as the colour of ripe apricots.

Our general favourite, the Mushroom (*Agaricus campestris*) is held in small esteem in Italy. "May he die of a pratiola!" is one of the wishes an Italian expresses for an enemy. In Rome the sale of mushrooms is forbidden by the "Inspector of Fungi." Another variety, the *Deliciosus*, is much prized, and was looked upon as a luxury by the ancient Romans.

The Chantarelle (*Cantharellus cibarius*) is in favour at our civic dinners, where costly dainties are supplied. This fungus is very generally esteemed in France, Germany, Austria, and Italy. The Morel (*Morchella esculenta*) much resembles a sponge: it is used with us to flavour soups and gravies.

The Truffle (*Tuber aestivum*) is a dark-coloured, rough-looking body buried beneath the surface of the ground; chiefly found on the downs of Wiltshire Hampshire, and Kent. In May White Truffles are found; about a month before and after Christmas Black Truffles are dug up; they are then hard, and have acquired all their perfume. The usual method of finding them is by dogs trained for the purpose.

I dare say you know what is called "green oak," in Tunbridge ware; but perhaps you do not know that the greenness is due to the presence of a fungus, *Helotium aruginosum*, which attacks fallen oak branches. It traverses the whole fabric with minute threads, which give their green tints to the timber; with a glass you will readily distinguish the beautiful network.

One word more and I have done. The wisest of men was he who most deeply studied the works of God around him; and surely those who best know and love God's works here, will be best attuned to the enjoyments of heaven hereafter. Our blessed Lord bade us "consider the lilies;"

"He made them all;  
And what He deigns to make can ne'er be deemed  
Unworthy of our study and our love."

#### TABULAR VIEW OF THE TWENTY-FOUR CLASSES OF LINNÆUS.

1. Monandria	...	...	...	...	...	...	...	One stamen.
2. Diandria	...	...	...	...	...	...	...	Two stamens.
3. Triandria	...	...	...	...	...	...	...	Three stamens.
4. Tetandria	...	...	...	...	...	...	...	Four stamens.
5. Pentandria	...	...	...	...	...	...	...	Five stamens.
6. Hexandria	...	...	...	...	...	...	...	Six stamens.

7. Heptandria	...	...	Seven stamens.
8. Octandria	...	...	Eight stamens.
9. Enneandria	...	...	Nine stamens.
10. Decandria	...	...	Ten stamens.
11. Dodecandria	...	...	From twelve to nineteen stamens.
12. Icosandria	...	...	Twenty or more stamens inserted in the calyx.
13. Polyandria	...	...	Twenty or more stamens inserted into the receptacle or top of the flower stalk.
14. Didynamia	...	...	Two long and two short stamens.
15. Tetradynamia	...	...	Four long and two short stamens.
16. Monodelphia	...	...	Stamens united by their filaments in a tube.
17. Diadelphia	...	...	Stamens united in two sets.
18. Polydelphia	...	...	Stamens united in three or more sets.
19. Syngenesia	...	...	Stamens united by their anthers in a tube—compound flowers.
20. Gynandria	...	...	Stamens united to the pistil.
21. Monœcia	...	...	Stamens and pistils in separate flowers, both kinds of flowers on the same plant.
22. Diœcia	...	...	Stameniferous flowers on one plant and pistilliferous on another.
23. Polygamia	...	...	Stameniferous and pistilliferous flowers, and perfect flowers all on the same plant, or on different plants of the same kind.
24. Cryptogamia	...	...	Plants whose organs of fructification are not well ascertained, or differ greatly from those of the preceding classes.

# INDOOR GAMES.

## HINTS ON BILLIARDS FOR LADY PLAYERS.

In these days one can hardly enter a large house, either in the country or in London, where there is not a billiard-room, and it is the favourite resort for amusement on wet days and in the evenings for the ladies as well as the gentlemen of the party; the former being often persuaded to take a cue without having the faintest knowledge of the use of it or even the simplest rules of the game.

It has often struck me how much more interesting it would be to the party in general, if, instead of the constantly repeated rather helpless-sounding questions which one so often hears from ladies, of "What am I to do?" "Which is my ball?" "Where am I to strike it?" &c., &c., they were able at least to make a show of holding their own against their more practised adversaries.

People are sometimes apt to fancy that a billiard-room is not a place for ladies; but myself I can see nothing in the game that is unsuitable for them, nothing ungraceful, and nothing rough or requiring violent exercise; in fact, to my mind, nothing whatever unladylike—rather the contrary: a neat steady hand and a well-turned wrist look anything but out of place on the green cloth. Besides this, it is a healthy game, as the necessary positions required in working the cue open the chest, and a certain amount of exercise is involved in walking round the table to make the different strokes.

Ladies, as a rule, have good judgment, good nerve, and these, together with practice and execution, are the chief requisites for billiards; and if they will only pay attention to a few hints I am about to give, there is no doubt that in a short time a lady can become a first-rate player.

It will not do for me to enter into all the games that can be played on a billiard-table, as it would take a long time to thoroughly explain all the rules even of the two most popular, viz., Pool and Pyramids, so I will confine myself to Billiards only. When this game is thoroughly learnt, the others will be found easy to master.

In commencing my instructions, I think I cannot do better than teach the beginner the use of the left hand in making a rest; this, of course, is presuming my player to be right-handed, otherwise, of course, the rest would be made with the right hand, the cue being held in the left.

To make a rest, place the hand flat on the table, with the four fingers touching each other, this done, draw the knuckles of the hand up, forming an angle in the centre, but at the same time keeping the part of the hand which is on the table and nearest the wrist stationary. The natural tendency of the thumb will be to leave the table as you draw the knuckles up, but it will not come up sufficiently high to form a comfortable resting-place for the

cue, so this you must do to suit yourself, always being careful that your cue does have an easy and safe resting-place without being in any way held by the thumb and knuckle of the forefinger, and so may be easily passed backwards and forwards on its rest. There are times when the balls are so placed on the table as not to admit of the player being able to get at her ball to play a stroke. To meet this difficulty, every table is supplied with a rest, which is made for the purpose, consisting of a stick, usually an old cue, with an ivory or wooden top with a groove cut in it, in which the cue rests, thus enabling the striker to play without getting on the table herself, which does not improve the level of the table, nor would it be a graceful movement for a lady. It is frequently done by men when playing on public tables, but would not be allowed in a match between professionals; in fact, it strictly is not allowed at all, and when done is only to save the player the trouble of using the rest.

### THE USE OF THE CUE.

Good players, as a rule, have a private cue of their own, and no doubt it helps one greatly to play with the same cue always, because you get accustomed to the weight and strength of it; but a beginner knows nothing about strength or side, &c., so I would recommend her choosing a cue with a good-sized tip, say about the size of a threepenny bit to begin with, because she will be less likely to miss the ball she is playing with, and also less likely to cut the cloth off the table.

Now, the way to hold the cue is, I think, the most essential thing in the game, for unless the cue is properly held and worked, it is impossible to strike the ball you are playing with in the right place, let alone the ball aimed at; and although many very fair players use a cue differently, I think you will find that the best players hold it in the way I am about to describe.

Having chosen your cue to suit you, place it on your rest, with the tip working from 4 to 6 inches beyond your rest, holding the cue loosely in the right hand, as close as convenient to the butt. Now, where many players make a mistake is in working the cue backwards and forwards with the right arm. Instead of the cue being worked with a loose wrist and from the elbow, you will see players working the arm from the shoulder, and consequently the chances are very remote of the cue working straight, because the arm generally sways to one side or the other; and to prevent that, you will find that by keeping the elbow well in to the right side, and playing from the elbow and wrist, the movements of the cue will be more uniform.

The next thing to see to is that you have the top of your cue well chalked, so as to prevent making a miss, which you would be sure to do when playing a side-stroke, because without chalk the top, instead of adhering to the ball, would slip off whichever side you might be playing at.

I think now the player may safely attempt to strike the ball she is playing with; and do let me impress upon her to strike it as near the centre as possible at first, and if not in the centre, rather over than under it, for by so doing you avoid cutting the cloth, which you are very apt to do when you strike low; your ball will travel much farther and faster, and, the chances

arc, much truer. So many beginners want to be able to put side on their strokes, screw back, &c., before they can even hit their ball properly, "like a child trying to run before it can walk."

We will presume now you can strike your own ball; the next thing is to strike the ball you are aiming at, and to strike it in the right place, so as to make a cannon or a winning or losing hazard, as the case may be; but this can only be done by practice, a good eye, and the even working of the cue with the right hand.

In the game of billiards as played in England three balls are used, a red ball, and two white balls, one of which has a black spot on it, to distinguish it from the other, and is called the "spot white," the other being called the "plain white."

At the commencement of the game the red ball is placed on a spot 13½ inches from the top cushion. The first to play commences from baulk, which is a semicircle drawn on the cloth, inside which the ball must be placed at the commencement of the game, or at any time when the player must start fresh, after having been put in a pocket or knocked off the table for instance.

The player can either play at the red ball which is spotted, or do what is usually done, which is to give a miss in baulk; but this is a difficult thing for a beginner to do, as the ball has to be played so as to go outside of the baulk-line, which is a line 28 inches from the lower cushion, and strike either the right or left cushion, whichever the player may choose to play at, and come back inside the line: the reason of this is, that if your ball is left out of baulk it can be played at, and will leave two balls for your adversary to play at instead of only one—the red ball on the spot. In order to play this stroke you must put on the inside; that is, strike your ball on the side nearest the bottom cushion.

The game is usually 50 up, but you may play any number convenient; and it is optional who plays first; after which alternate strokes are played until either one scores, when she will continue till she fails.

Having looked at the theory of the game, I will now say a few words on the practice.

Never give a miss close to the cushion, because it is always easier to score a cannon off, or run through the ball.

In playing a cannon, always play off the red when possible on to the other ball. A cannon is always left after a miss in baulk, at the commencement of the game; and frequently the striker's ball is left near one of the corner pockets, and this is a stroke that should be practised, as it is very simple, and only requires your own ball to be properly spotted before playing. When playing to put your adversary's ball down, play slowly, for by so doing, if you fail to pocket her ball, you will leave it so close as to make it difficult for her to play at next stroke.

In playing a losing hazard you must be careful of the strength, for if you play too hard, the object ball will come in baulk, and, if it is the only ball on the table at the time, will leave you nothing to play at.

In playing a miss out of baulk, be careful not to place your ball so as to leave a hazard into the middle pocket.

If you put the red ball in, it counts three.

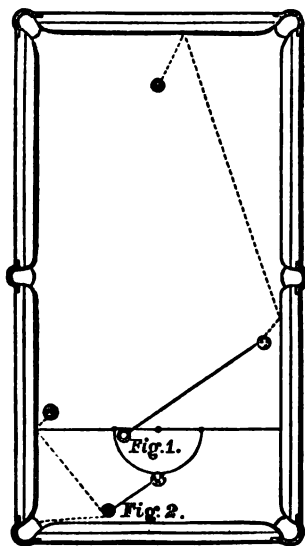
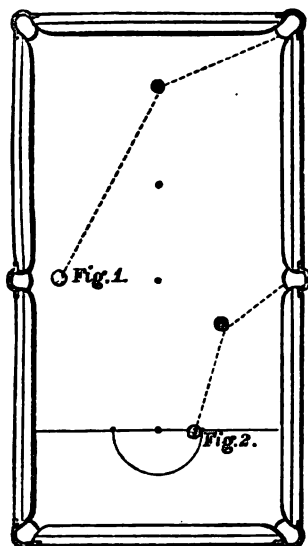
If you go in off it, it counts three.

If you put the red in and go in after it, it counts six.

If you put the white ball in or go in off it, it counts two. And if you put it in and go in off it, it counts four.

A 5-stroke is a cannon and pocketing the red ball, or a cannon and pocketing the striker's ball, having struck the red first.

A 7-stroke is striking the adversary's ball, pocketing it, making a cannon, and pocketing the red also; or by playing at an opponent's ball first, and pocketing all the balls without making a cannon.



An 8-stroke is striking the red ball first, pocketing it, making a cannon, and pocketing the striker's ball.

A 9-stroke is striking an opponent's ball first, making a cannon, and pocketing all the balls.

A 10-stroke is made by striking the red ball first, making a cannon, and pocketing all the balls.

If you fail to hit either ball, it is a miss, and counts one to your opponent; and if you fail to hit either ball, and either go off the table or run into a pocket, it counts three to your opponent.

A Winning Hazard is putting the object ball into a pocket.



A Losing Hazard is going in off the object ball.

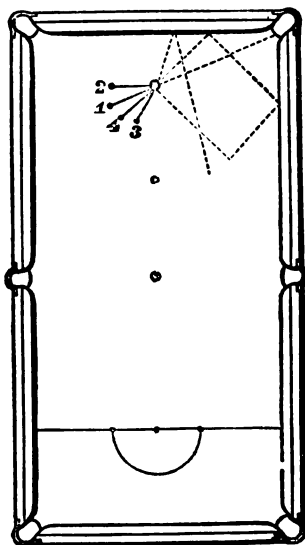
The winner of the game is the one who first scores the requisite number of points.

A great help to success is the possession of a good temper.

When the player finds herself ahead, let her play very carefully. When she is behind, let her then attempt any hazard or cannon she is at all likely to make.

I will now finish my instructions to the beginner by describing a few simple strokes on the table by means of diagrams, and wind up with Roberts's spot-stroke.

Figs. 1 and 2 represent losing hazards made by a half-ball, viz., in this



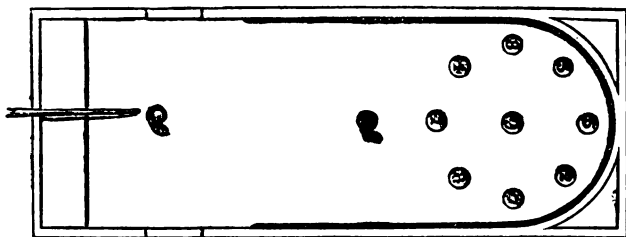
instance striking your own ball in the centre, and the red on the right side. In Fig. 2, by going in off the red into the centre pocket, and by playing the right strength, the red ball will touch the top cushion, come down, and leave the same hazard again.

Fig. 1 is an ordinary cannon played from baulk, made by striking the white high on the left side, the spot white on the same side, and the cannon made off two cushions.

Fig. 2 is a 5-stroke. The white struck high on the right, the red struck so as to make a winning hazard, and being cut away, its place is crossed by the white, scoring a cannon.

Nothing but practice, a good eye, labour, and perseverance will enable a player to do the spot-stroke, for there is only one spot on the object ball that when struck must cause it to find the pocket :

1. By a straight shot, and drawing your own ball back.
2. By a slow stroke almost full on the end.
3. By a cut, and
4. By a following stroke off the top and side.



### BAGATELLE.

Like billiards, Bagatelle is played with a cue and ivory balls, but there are nine balls instead of three, and instead of pockets there are small cups sunk in the board.

The game is a very simple one, and consists in playing as many of the balls as possible into the cups. When the board is levelled, which may easily be done by pushing two or three small wedges under it, the first player takes the black ball and places it on the ivory spot just in front of the cups. She then takes one of the other balls, places it either on or anywhere behind the ivory spot at the end of the board, and with the cue aims it so as to strike the black ball.

Should she miss, the white ball is called "dead," and is removed from the board. Should she strike the black ball, she plays all the other seven in succession, trying to get them into the cups; and when she has played all the balls, she counts up the number of points indicated by figures painted in the bottom of each cup, and adds them to her score.

The great point of this game is to get the black ball into the central cup, because it counts double the number painted on the cup, so that if it goes into 8 it scores sixteen, and if it goes into 5 it scores ten; whereas if, as is often the case, it drops into 1, it only scores two, and hinders play with the other balls besides.

The numbers 8 and 7 are best got by playing the ball against the side of the board just opposite the 4 and 6 cups, so that it comes off at an angle and falls into the cup. It must be played with only just strength enough to reach the cup, or it will roll out again. The best way to get the black ball into the 9 is to strike it with one of the other balls against the top of

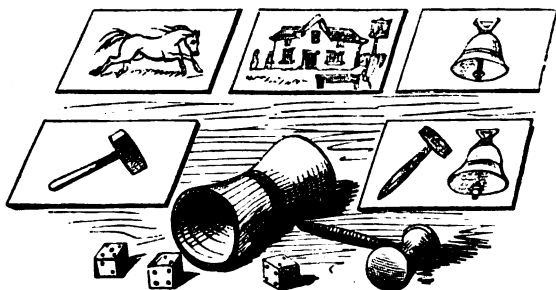
the board, so as to make it recoil either between the 5 and 3 or the 5 and 2, and come somewhere between the 4 and 9 or the 6 and 9, when a very gentle touch will drop it into the desired cup.

It is hardly possible to play too gently at this game. In the first place, if a ball be played so hard that it comes back beyond the middle of the board, it is called dead, and is taken off the board. The middle is indicated in those boards which fold up by the two hinges, and in those that stand on legs by a spot on each side, and a line of fine stitches on the cloth.

Moreover, with hard play the balls may get into the cups, but will not stay in them.

There is only one case where hard play can do good. Sometimes the balls are very obstinate, and utterly refuse to go into the cups. They roll round them, they stop short on the edges, they roll in and out again, and when the last ball has to be played there is a whole assemblage of balls gathered together at the top of the board. The only chance then is to drive the last ball among them, so as to cause a general scattering, and take your chance of some of them falling into the cups. If you played the last ball gently ever so well, you would at best get the 8 or 7; but by scattering them you have a good chance of getting four or five of them into the cups.

Never lose temper at bagatelle. There is a vast amount of luck as well as of play, and it is very mortifying to a good player to score only six or eight each turn, while her antagonist, who can scarcely play a stroke, scores her thirty or even forty. But in the long run luck is tolerably sure to equalize itself, and then the superior skill begins to tell, so that towards the end of the game the score of the better player creeps quietly on, while that of her opponent decreases in proportion.



SCHIMMEL.

This is an amusing game and full of interest, though it is merely a matter of chance. The rules, as furnished to us by Mr. Cremer, Jun., are as follow:

**RULES.**—Any number of persons may play. Begin by throwing the numbered squares: whoever throws the highest number takes the office of Cashier.

The cashier distributes an equal number of counters to each player; he then takes the hammer in his hand, and having called silence, puts up for sale the five cards separately, and disposes of them to the highest bidder: the produce is to be put into the pool, to which each player must pay four counters.

The cashier has the privilege of first throw, and also of choosing who shall be the second, third, and fourth players, always allowing the ladies to play before the gentlemen.

When all blanks are thrown, each player pays one to the holder of the white horse.

If with the blanks the bell or hammer, or both, are thrown, the possessor of such cards pays one to the holder of the white horse.

When numbers are thrown with the bell or hammer, the cashier is to pay from the pool the amount of such numbers to the holder of the card.

When numbers and blanks are thrown, the cashier pays the amount of such numbers to the player from the pool.

When the pool is nearly empty, there arises an advantage to the inn; for if the amount of the numbers thrown exceeds what is in the pool, the player pays the overplus to the owner of the inn.

If all blanks are thrown after the inn begins to receive, the player pays nothing, but the owner of the white horse pays one to the inn; and should the bell or hammer be thrown with blanks, the holder of such card pays one to the inn; and if numbers accompany the bell or hammer, the owner of such card must pay to the inn the number thrown above those remaining in the pool.

The game is won by one of the players throwing exactly the same number as what is remaining in the pool, who takes the contents thereof, and is cashier for the next game.



SPILLIKINS.

This is a game of pure manual dexterity, and is rare practice for cultivating steadiness of hand and delicacy of touch.

Its worst fault is that in the very nature of the game a constant series of

dead-locks are inevitable, only to be overcome by the self-sacrifice of one or other of the players.

This is a great drawback to its popularity: it is, we are afraid, however, inherent, in its very constitution, and therefore beyond the power of reform.

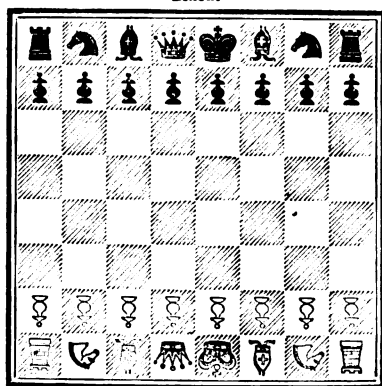
The spillikins, or "jack-straws" as they are familiarly and vulgarly called, are a number of thin narrow slips of wood, bone, or ivory, each more or less notched, sometimes cut into fantastic shapes, and numbered.

These being held together in a bundle, are allowed to fall on the table, and the players, two or more in number, each in turn pull them out one by one with a small hook. As long as a player can go on abstracting from the heap, without in any way shaking or disturbing more than one spillikin at the time, her turn continues, and all she thus secures she keeps; at the least shake her turn ceases, and the next player goes on.

When all the spillikins have been thus abstracted, each player counts her heap, each spillikin being valued at the number inscribed on it, and she who has most wins.

## CHESS.

Black.



White.

ORDER OF THE MEN ON THE BOARD.

## INTRODUCTORY.

Chess is one of the most ancient known games of skill. Mr. Drummond, a writer on the game of draughts, asserts that draughts is the "elder sister of chess," which he properly describes as "the thinking game;" but, however that may be, there is indisputable evidence that chess was known in the most remote periods. Various theories are advanced as to its origin. One account states that the wife of Ravan, King of Ceylon, devised it in order

to amuse her royal spouse with an image of war while his metropolis was closely besieged by Rama. There are at least a dozen claimants for the honour of the invention, but all the accounts of the origin of "the thinking game" are attended with more or less uncertainty.

We will now proceed to give the necessary directions for playing the game.

The game is played on a board divided into sixty-four squares, coloured alternately black and white. It is the same as that used at draughts. Eight pieces of different denominations and powers, and eight pawns, are allotted to each competitor. As a necessary distinction, each set is coloured in a different way, one commonly being white, the other red or black. The pieces are named as follows:



King



Queen



Bishop



Knight



Rook



Pawn

Every player, therefore, is provided with one king, one queen, two bishops, two knights, and two rooks, besides the eight pawns. They are placed, at the beginning of each game, in the order shown at the head of this article.

In placing the board, care must be taken that a white corner square be at the right hand of each player. It should also be observed that the queen must be placed upon a square of her own colour.

### THE PIECES: THEIR POWERS AND MODE OF ACTION.

The king can move in any direction—forward, backward, sideways, or diagonally, provided always, of course, that he does not move into check. The king possesses one great prerogative—that of *never being taken*; but, by way of counterbalancing the advantage of this exemption, he is restrained from exposing himself to *check*. He can move only one square at a time, except when he *castles*, which he may do once during each game. He may then move two squares. He cannot *castle* when in *check*, nor after he has once moved, nor with a rook that has been moved, nor if any of the squares over which he has to move be commanded by an adverse piece.

The queen can move either horizontally or diagonally. She combines the powers of the bishop and the rook. She can, at one move, pass along the whole length of the board, or, if moving diagonally, from corner to corner. Although she can move and take in the same manner as a bishop or as a rook, she must make the whole of one move in one direction, and cannot combine *in one move* the powers of these two pieces: in other words, she cannot move round a corner at one step.

The rook (sometimes called the castle) may pass along the entire length of the board at one move. It may move backwards, or forwards, or sideways—but always horizontally, never diagonally.

The bishop can move only in a diagonal direction, but can go any number of squares, from one to eight, or as far as the space be open. The bishop can never change the colour of his square. Thus, the white king's bishop being

on a white square at the beginning, remains so throughout the game. This is a necessary consequence of his move being purely diagonal.

The knight has a power of moving which is quite peculiar, and rather difficult to explain. He moves two squares at once in a direction partly diagonal and partly straight. He changes the colour of his square at every move. The knight is the only piece that possesses what is styled the "vaulting motion." He is not precluded from going to a square between which and his own other pieces intervene. Thus, instead of moving your king's pawn two, as your first move, you might, if good play permitted it, move out either of your knights right over the row of pawns in front. This power is possessed by the knight alone, all the other pieces being obliged to wait until there is an opening in front of them before they can emerge.

The pawn moves in a straight line towards the adverse party. It cannot move out of its file except in capturing one of the opposing pawns or pieces, when it steps one square in a diagonal or slanting direction, and occupies the square of the captured piece. It can only be moved one square at a time, excepting in the first move, when the player has the option of advancing it two squares. The pawn is the only piece which cannot retreat, and which does not take in the direction in which it moves. For full explanations relative to "queening the pawn," and taking a pawn *en passant*, see instructions on those points.

### ABBREVIATIONS.

The abbreviations which are invariably used in chess publications are the following: K. for king, Q. for queen, B. for bishop, Kt. for knight, R. for rook, P. for pawn, Sq. for square, and Ch. for check. The pieces on one side of the board are distinguished from those on the other in the following manner: Those on the same side as the king are named after him, as K.'s B. (king's bishop), K.'s Kt. (king's knight), K.'s R. (king's rook); while those on the same side as the queen are named Q.'s B. (queen's bishop), Q.'s Kt. (queen's knight), Q.'s R. (queen's rook). The pawns are distinguished in like manner. The pawn occupying the square in front of the K.'s B. is called K.'s B.'s P.; that in front of the K.'s Kt. is called K.'s Kt.'s P.; that in front of the Q.'s R. the Q.'s R.'s P., &c.

### CHESS NOTATION.

It is very necessary that the beginner should thoroughly understand the system of notation which is invariably used throughout England, for without it she could never make any use of book games.

The following diagram fully explains it. It will be seen that the moves are reckoned both for black and white.

(See the diagram on next page.)

Suppose the white queen's bishop moves one square, it is then said to stand on its second, which is the black queen's bishop's seventh. The white king's eighth is the black king's first, and *vice versa* all through the pieces.

Black.

♠R8	♠Kt8	♠B8	♠sq	♠K8	♠B8	♠Kt8	♠R8
Q.R.8	Q.Kt.8	Q.B.8	Q.8	K.8	K.B.8	K.Kt.8	K.R.8
♠R7	♠Kt7	♠B7	♠7	♠K7	♠B7	♠Kt7	♠R7
Q.R.7	Q.Kt.7	Q.B.7	Q.7	K.7	K.B.7	K.Kt.7	K.R.7
♠R6	♠Kt6	♠B6	♠6	♠K6	♠B6	♠Kt6	♠R6
Q.R.6	Q.Kt.6	Q.B.6	Q.6	K.6	K.B.6	K.Kt.6	K.R.6
♠R5	♠Kt5	♠B5	♠5	♠K5	♠B5	♠Kt5	♠R5
Q.R.5	Q.Kt.5	Q.B.5	Q.5	K.5	K.B.5	K.Kt.5	K.R.5
♠R4	♠Kt4	♠B4	♠4	♠K4	♠B4	♠Kt4	♠R4
Q.R.4	Q.Kt.4	Q.B.4	Q.4	K.4	K.B.4	K.Kt.4	K.R.4
♠R3	♠Kt3	♠B3	♠3	♠K3	♠B3	♠Kt3	♠R3
Q.R.3	Q.Kt.3	Q.B.3	Q.3	K.3	K.B.3	K.Kt.3	K.R.3
♠R2	♠Kt2	♠B2	♠2	♠K2	♠B2	♠Kt2	♠R2
Q.R.2	Q.Kt.2	Q.B.2	Q.2	K.2	K.B.2	K.Kt.2	K.R.2
♠Rsq	♠Kt.sq	♠B.sq	♠sq	♠K.sq	♠B.sq	♠Kt.sq	♠R.sq
Q.R.sq	Q.Kt.sq	Q.B.sq	Q.sq	K.sq	K.B.sq	K.Kt.sq	K.R.sq

White.

CHESS NOTATION FROM EACH END OF THE BOARD.

## TECHNICAL TERMS USED IN THE GAME.

**The Move.**—Whichever player opens the game by making the first move is said to have "the move."

**Check.**—When your king is attacked by any piece, he is said to be "in check," and it is your opponent's duty to give you warning of such an event by crying "Check," when she makes the move. You must then put your king out of check by moving him, by taking the checking piece, or by interposing one of your own men between the checking piece and your king, thus "covering" check, as it is termed.

**Checkmate** is the term used when the king is in inextricable check, *i.e.*, when none of the above means avail to place him beyond the range of the attacking pieces. When a checkmate is obtained, the game is at an end, that being the sole object.

**Discovered Check** is when the player moves a pawn or piece from before another piece, thereby opening or "discovering" check: *e.g.*, the black rook may be on a line with the opposing king, the only intervening piece being a black pawn. The removal of this pawn "discovers check."

**Double Check** is when check is discovered as above, the king being also attacked by the piece moved.

**Perpetual Check** is when the king of one of the players can be checked



almost at every move, and when he has little else to do but move out of check. When the game has reached this stage, the weaker player may demand that checkmate shall be given in a certain number of moves, in default of which it may be declared a drawn game.

**Drawn Game.**—A drawn game may arise from several causes :

1. As above.

2. Stalemate. (See "Stalemate.")

3. Equal play. "Between very good players," remarks Phillidor, "it sometimes happens that the equipoise in force and position is constantly sustained in the opening, in the intermediate stages, and in the last result; when either all the exchangeable pieces have been mutually taken, or the remaining forces are equal—as a queen against a queen, a rook against a rook, with no advantage in position, or the pawns are mutually blocked up."

4. Absence of mating power, *i.e.*, when neither player possesses the force requisite to obtain a checkmate.

5. Unskilful use of a sufficiently strong force. If one player is superior in force to her adversary, and possesses the requisite mating power, the game may still be drawn by the unskilful use of that superiority. If she cannot effect a checkmate in fifty moves it may be declared a drawn game.

**Stalemate** describes that state of the game when one of the players has nothing left but her king, which is so placed that, although not in check, she cannot move without going into check.

**Castling** is a double operation, accomplished by moving the king and one of the rooks at the same time. When the removal of the bishop and the knight on the one side, or of the bishop, knight, and queen on the other, has cleared the intervening squares, the king may *castle* with either of his rooks. If it should be done on the king's side of the board, the king is to be placed on the knight's square, and the rook on the bishop's; if in the queen's section, the king must be moved to the bishop's square, and the rook to the queen's. In other words, the king, in either case, must move two squares, and the rook be placed on the opposite side of him to that on which he stood before.

**En Prise.**—A piece is said to be *en prise* when under attack.

**En Passant (in passing).**—If your adversary has advanced one of her pawns to the fifth square, and you move one of your pawns in either of the adjoining files two squares, she is entitled to take your pawn, *en passant*, as though you had only moved it one square. This peculiar mode of capture can only be effected by pawns.

**Ranks and Files.**—The lines of squares running from left to right are known as *ranks*, and those perpendicular to them, running from one player to the other, are called *files*.

**Passed and Isolated Pawns.**—A pawn is said to be "passed" when it is so far advanced that no pawn of the adversary's can oppose it. An isolated pawn is one that stands alone and unsupported.

**Double Pawn.**—Two pawns on the same file.

"*Fadaube*" (signifying *I adjust* or *I arrange*) is the expression generally used when a player touches a piece to arrange it without the in-

tention of making a move. Perhaps it is not absolutely necessary that she should say "*F'adoube*," but she must at any rate use an equivalent expression.

*To Interpose.*—This term explains itself. If your king or one of your pieces is attacked, and you move another of your pieces between the attacking piece and the piece attacked, either for the purpose of covering check, or as a means of protection, or with any other object, you are said to "interpose."

*Winning the Exchange.*—You are said to "win the exchange" when you gain a rook for a bishop, a bishop for a knight, or, in short, whenever you gain a superior piece by giving an inferior.

*Queening a Pawn.*—You are said to "queen a pawn" when you advance it to the eighth square on the file. You may then claim a queen or any other piece in exchange for it. Formerly the rule was, that you might substitute for it any piece you had previously lost, but according to the modern game three or more rooks, or bishops, or knights, may be obtained in this way.

*Gambit.*—This term, which is derived from the Italian, describes an opening in which a pawn is purposely sacrificed at an early stage of the game, in order subsequently to gain an advantage. Several gambits are distinguished by the names of their inventors, such as the Cochrane gambit, the Muzio gambit, the Salvio gambit, &c.; there are also the bishop's gambit, the queen's gambit, &c., &c.

*Mating Power.*—The force requisite to bring about a checkmate: a king and queen against king and two bishops, king and two knights, king and bishop and knight, or against king and rook, can effect checkmate. King and two bishops can mate against king and bishop, or king and knight. King with two bishops and knight can mate against king and rook. King with rook and bishop can mate against rook and king. King can always draw against king and bishop, or king and knight. King and rook against either a king and bishop, or king and knight, makes a drawn game, &c.

## LAWS OF THE GAME.

The following laws are in force in all the principal clubs in this country:

1. If a player touch one of her men, unless for the purpose of adjusting it, when she must say "*F'adoube*" (see Law 4), or it being her turn to move, she must move the piece she has so touched.

[Walker gives the following remark on this law: "When you touch a piece with the *bond fide* intention of playing it, the saying *F'adoube* will not exonerate you from completing the move. A chess-player's meaning cannot be misunderstood on the point; and were it otherwise, you might hold a man in your hand for five minutes, and then saying '*F'adoube*,' replace it, and move elsewhere."]

2. If the men are not placed properly at the beginning of the game, and this is discovered before four moves have been made on each side, the game must be recommenced. If the mistake should not be found out till after four moves have been made, the game must be proceeded with.

3. Where the players are even, they must draw lots for the first move, after which they take the first move alternately. When a player gives odds, she has the option of making the first move, and the choice of men in every game.  
[In giving odds, should it be agreed upon to give a pawn, it is customary to take the K. B. P. If a piece is to be given, it may be taken from either the king's or queen's side.]
4. If a player should accidentally or otherwise move or touch one of her men without saying "*Fadoubé*," her adversary may compel her to move either the man she has touched or her king, provided the latter is not in check.
5. When a player gives check, and fails to give notice by crying "Check," her adversary need not, unless she think proper, place her king out of check, nor cover.  
[If it is discovered that the king is in check, and has been so for several moves past, the players must move the men back to the point at which they stood when check was given. If they cannot agree as to when check was first given, the player who is in check must retract her last move, and defend her king.]
6. The player who effects checkmate wins the game.
7. Stalemate constitutes a drawn game.
8. So long as you retain your hold of a piece you may move it where you will.
9. Should you move one of your adversary's men instead of your own, she may compel you to take the piece you have touched, should it be *en prise*, or to replace it and move your king; provided, of course, that you can do so without placing him in check.
10. Should you capture a man with one that cannot legally take it, your adversary may compel you either to take such piece (should it be *en prise*) with one that *can* legally take it, or to move the piece touched; provided that by so doing you do not discover check, in which case you may be directed to move your king.
11. Should you move out of your turn, your adversary may compel you either to retract the move, or leave the piece where you placed it, as she may think most advantageous.
12. If you touch the king and rook, intending to castle, and have quitted hold of the one piece, you must complete the act of castling. If you retain your hold of both, your adversary may compel you to move either of them.
13. The game must be declared to be drawn should you fail to give checkmate in fifty moves, when you have
 

King and queen against king.	King and pawn against king.
King and rook            "	King and two pawns   "
King and two bishops   "	King and minor piece  "
King, bishop, and kt.   "	
14. Drawn games of every description count for nothing.

15. Neither player may leave a game unfinished, nor leave the room without the permission of her adversary.
16. Lookers-on are not permitted to speak, nor in any way express their approbation or disapprobation while a game is pending.
17. In case a dispute should arise on any point not provided for by the laws, a third party must be appealed to, and her decision shall be final.

### HINTS FOR COMMENCING THE GAME.

To open the game well, some of the pawns should be played out first. The royal pawns, particularly, should be advanced to their fourth square: it is not often safe to advance them farther. The bishops' pawns should also be played out early in the game; but it is not always well to advance the rooks' and knights' pawns too hastily, as these afford an excellent protection to your king in case you should castle. Phillidor describes pawn-playing as "the soul of chess." When they are not too far advanced, and are so placed as to be mutually supporting, they present a strong barrier to the advance of your adversary, and prevent her from taking up a commanding position. If you play your pieces out too early, and advance them too far, your adversary may oblige you to bring them back again by advancing her pawns upon them, and you thus lose time.

Do not commence your attack until you are well prepared. A weak attack often results in disaster. If your attack is likely to prove successful, do not be diverted from it by any bait which your adversary may purposely put in your way. Pause, lest you fall into a snare.

Beware of giving check uselessly—*i.e.*, unless you have in view the obtaining of some advantage. A useless check is a move lost, which may, particularly between good players, decide the game.

It is generally injudicious to make an exchange when your position is good, or when, by so doing, you bring one of your adversary's pieces into good play. Never make an exchange without considering the consequences. When your game is crowded and ill arranged and your position inferior, it is advantageous to exchange. Sometimes also, when you are much superior in force, it is worth your while to make an equal exchange.

The operation of castling often relieves a crowded game. A lost opportunity of castling, or castling at the wrong time, is a disadvantage which may be turned to account by your adversary.

Never put your queen before your king in such a way that your adversary may bring forward a bishop or rook and attack her, and the king through her. In such a case, unless you can interpose another piece, you will inevitably lose your queen.

It is good play to "double" your rooks—*i.e.*, to make them mutually supporting. Don't bring your rooks into active play too soon. They can generally operate most effectively at a distance, and they are therefore of most value towards the end of the game, when the board is comparatively clear.

From time to time take a review of the game. Although an incurably

tedious player is a general nuisance, it is mere folly to play without "knowing the reason why." To take an occasional review of the game gets you into a systematic habit. When near the close, take notice of the position of your adversary's pawns, and if you find that you can queen before her, make all haste to do so; if not, attack her pawns so as to prevent her from queening. If your adversary possesses a decided advantage, look out for a means of drawing the game.

Do not stick to one opening, but learn as many as you can.

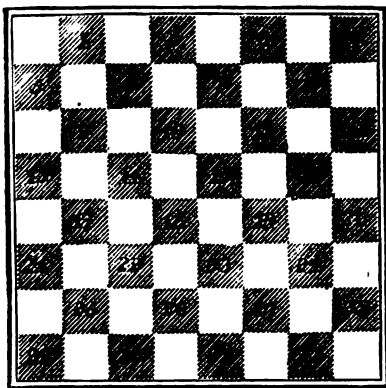
Always be willing to accept odds of a better player, so that the game may be interesting to her. If you should lose, it is natural that you should feel inwardly chagrined, but do not let your disappointment be perceived. "Keep your temper" is a golden rule. Do not throw up the game before you are quite sure it is lost. On the other hand, you should not too hastily jump to the conclusion that you have won it.

It is necessary that you should occasionally study some of the best book games, but without actual practice proficiency can seldom be attained.

Endeavour to understand the reasons which lead to your adversary's moves, and take measures accordingly.\*

## THE GAME OF DRAUGHTS.

Black.



White.

Draughts are played on the same board as is chess, the men, however, being placed entirely on squares of one colour.

There are twelve men on each side, arranged on the squares from 1 to 12 and from 21 to 32.

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\* For further instruction consult "Chess." Warne & Co.

The two squares marked 1 and 5, and 32 and 28, are called the *double corners*, and these must always be on the right hand of the player, whilst the left-hand lowest square, 4 and 29, must always be on the left-hand side.

Having arranged the men, the first move is arranged between the players by lot.

The men move one square at a time: thus, the man on 22 can move either to 18 or 17; the man on 23 can move either to 19 or 18. The men can only move forwards, not backwards, until they have succeeded in reaching the bottom row of the adversary's squares, when they are *crowned* by having a second man placed above them. They are then termed *kings*, and can move either forwards or backwards as desirable.

A man may *take* an opponent's man by leaping over him and taking up the vacant square beyond him, the piece taken being removed from the board.

A man may take two or three men at one move, provided he can leap over each in succession. To understand this, place a white man at 18, 11, and 25, and a black man at 29, all other pieces being removed from the board. The black man can move and take the three white men, as he can leap to 22, 15, and 8, thus taking the men on squares 18, 11, and 25. A king can take both backwards and forwards any number of men, as long as a square is open. Thus, place a white man on 25, 26, 27, 19, 10, 9, and 17. A black king at 29 could take all these men at once, for he could leap from 29 to 22, taking 25 man; to 31, taking 26; to 24, taking 27; to 15, taking 19; to 6, taking 10; to 13, taking 9; and to 22, taking 17, and taking all these in one move.

If a man take other men, and in the taking reach the bottom row, he cannot go on taking, as a king, until the adversary has moved.

*Example.*—Place a white man at 24, 7, 16, and 8, a black man at 28. The black man takes 24 by leaping to 19, takes 16 by leaping to 12, takes 8 by leaping to 3, and is there crowned; but cannot leap to 10, thus taking the man at 7, until the adversary has moved.

The game is won when all the adversary's men are either taken or blocked so that they cannot move, and it is drawn when two kings or less remain able to move, in spite of the adversary.

**LAWS.**—The following are the established laws of the game, which should be learnt by every person who is desirous of becoming a draught-player.

### RULES OF THE GAME OF DRAUGHTS.

The chief laws for regulating the game of draughts are as follow:

1. Each player takes the first move alternately, whether the last game be won or drawn.
2. Any action which prevents the adversary from having a full view of the men is not allowed.
3. The player who touches a man must play him.
4. In case of standing the huff, which means omitting to take a man when an opportunity for so doing occurs, the other party may either take

- the man, or insist upon her man, which has been so omitted by her adversary, being taken.
5. If either party, when it is her turn to move, hesitate above three minutes, the other may call upon her to play; and if, after that, she delay above five minutes longer, then she loses the game.
  6. In the losing game, the player can insist upon her adversary taking all the men in case opportunities should present themselves for their being so taken.
  7. To prevent unnecessary delay, if one colour have no pieces but two kings on the board, and the other no piece but one king, the latter can call upon the former to win the game in twenty moves; if she does not finish it within that number of moves, the game to be relinquished as drawn.
  8. If there are three kings to two on the board, the subsequent moves are not to exceed forty.

**ADVICE.**—The men should be kept as much as possible in a wedge form towards the centre of the board. Avoid moving a man on the side square, for when there he is deprived of half his power, being able to take in one direction only.

Consider well *before* you touch a man, for a man once touched must be moved.

Avoid the cowardly practice of moving a man, and then, when you discover by your adversary's move that you have committed an error, taking your move back. Stand the consequences though the game be lost, and next time you will be more careful. A game, even if won after replacing a man, is unsatisfactory, and not to be counted a victory, and often leads to disputes. The rules are made to avoid *all* argument and dispute, and the more closely, therefore, you obey these, the more harmonious will be your games.

Do not talk during a game, or fidget by drumming with the fingers, or in any way act so as to annoy or worry an adversary. A game of draughts, though only a game, may be made a training process for much more important matters. A careless, thoughtless, or worrying draught-player will, undoubtedly, be the same character in worldly matters.

Never allow the loss of a game to cause you to lose your temper, for such a proceeding shows you to be more self-sufficient than intellectual. If beaten, it proves your adversary to be more experienced or quicker sighted than yourself, and you should, therefore, use all your faculties to discover how she beats you.

As a rule, seek to play with a better player than yourself rather than with a worse, which is merely saying, "endeavour to improve your own game rather than to instruct a worse player."

When you lose a game, avoid all disparaging remarks, such as, "Oh, I should have won that if so-and-so had not occurred," &c. Your adversary who defeats you will think more highly of you if you say nothing, or merely acknowledge her greater skill.

If you find a person who defeats you easily, remember how much thought

and time she must have devoted to the subject in order to obtain this advantage, and bear in mind that it is only by a similar process that you can gain like results.

### GO-BANG.

The game of Go-bang has lately become fashionable. It is stated that we owe the game to Japan.

Go-bang boards with 400 squares and innumerable counters are sold at all the fancy shops; but the game can be just as well played with an ordinary draught-board and men.

Each player takes twelve men of one colour, and each alternately places a man on any square (of any colour) she chooses, until all the twenty-four men are placed, or until a go-bang is made, when the game is ended. Go-bang consists in getting five men of one colour in a row without any intervening man of another colour. The row may be either straight, like the squares commanded by a rook at chess, or diagonal, like those commanded by a bishop.

If all the men are put on without a go-bang, the players then move alternately. Any man may be moved one square in any direction, like a king at chess, but he cannot move on to a square already occupied by another man, and there is no taking. The players continue to move until a go-bang is obtained, or the game is given up as drawn.

Go-bang is very amusing, but, so far as we can see, with good play on both sides it must end in a draw. It is, in fact, an ingenious development of the game of our childhood, Tit-tat-to or Noughts and Crosses. The first move is very important and a great advantage. The second player must be wholly on the defensive for the first six moves at least, unless the assailant wastes a move. The best defensive moves will be on the points towards which two lines of attack converge, or where they intersect. Try to prevent the formation of open threes, especially on the oblique lines. Don't attempt a counter-attack till you see how to carry it on effectively. Place your stops on the clear side of the attacking force, heading your adversary back towards the squares you have already occupied. Place them without apparent connection, but, if possible, so that one man interposed may bring them into line. Some players give the winner the first move, but the first move should be strictly alternate, as at chess. If you wish to give odds, give the first move: you cannot give two. The game can be forced by the first player with those odds. In attacking, bid for a series of threes on the oblique files, and carry them on as far as you can before you begin filling up the direct lines. In other words (on a board properly coloured), try to make your attack at first all on one colour, and then fill up this skeleton pattern with the other colour. Three men forming a right angle, with a clear space beyond, give an almost irresistible attack. If you have a fair attack on one point, but don't see your way to winning, leave it when half developed, and distract your opponent's attention by a new one elsewhere. Above all, beware of enabling her to form a fatal counter-attack while apparently only





is adopted. The dominoes having been shuffled, each player takes six or seven, as may be agreed upon.

If it is found that one of the players has drawn more than the number agreed upon, her adversary withdraws the extra number, and puts them back on the heap, keeping the face downwards, of course. Each player then takes up her dominoes, and the first player commences by putting down one of her dominoes, after which her adversary joins one to it, containing on one of its sections the same number of pips as are marked upon adjoining section of the domino first played. They thus play alternately till the game may become so "blocked" that one of the players cannot "go." Her adversary will then continue to play as long as there is an end open. If she should succeed in getting rid of all her men, she wins the game; but if the game should be blocked at both ends before either player has played out, they compare the aggregate number of pips on all the dominoes in each hand, and whoever has the smallest number wins the game.

#### GENERAL MAXIMS.

1. Endeavour to play so as to keep both ends open, so that you may be sure of being able to "go" next time.

2. Play out your heavy dominoes first, because if the game becomes blocked, you will then have fewer pips to count.

3. Contrive to play so that the numbers at both ends shall be those of which you hold the most. By this means you may often block your adversary till you are played out.

4. If you have made both ends alike, and your adversary plays, follow her at that end, as the chances are that she cannot go at the other, which you may keep open for yourself until you are unable to play at her end.

5. It is sometimes an advantage to hold heavy dominoes, as they not unfrequently enable you to obtain what is called a good "follow;" and if your adversary should hold none but low dominoes, she would not be able to go, thus enabling you to play five or six times consecutively, or even to play out.

6. When you have sole command over both ends you are generally in a position to "block" the game or not, as you think most expedient for your own game. In such a case, you must be guided by the number of dominoes you hold compared with those in your adversary's hands; and another element for your consideration would be whether yours are light or heavy. If they are light, and fewer in number than your adversary's, of course your best policy is to close the game at once, and count. But in this you must learn to calculate from your adversary's style of play whether her hand is light or heavy.

7. At the commencement of the game it is better to have a variety in hand.

8. If you hold a "double," with two of the same number, it is better to play the double before either of the others. Sometimes you will be obliged to play one, in which case you must endeavour to force the double.

9. If you held a double, and one other of the same number, play both con-

secutively; but if you are unable to do that, endeavour at any rate to let the double go first.

10. In playing against "the down," endeavour to deceive your opponent by playing a domino or two at each end indifferently. This is better than playing to her last domino, as it leads her to believe you cannot go at that end, while at the same time you may be simply keeping both ends open.

11. If your adversary has possession of one end, make the other of a number of which you hold several, with a view of forcing her to play at her end, and shutting it against the dominoes she was keeping it for.

12. If you hold several doubles, wait till your adversary makes the number for them in preference to making them for yourself; otherwise, a good player will see what you are aiming at, and will block the double. But if you hold a double with several duplicates, and can bring that number at both ends, do so.

13. If your adversary cannot go at one end, and you hold the double of that end, it is better that you should play at the other as long as you can. When you are blocked at that end, you may then play your double, and your adversary will then in most cases be obliged to open the other end for you.

14. It is generally considered that a light hand, yet with no number missing, is the best for ordinary play. The following, for example, would be a very fine hand:  $\frac{3}{2}, \frac{5}{2}, \frac{7}{2}, \frac{6}{1}, \frac{8}{8}$ . An example of a bad hand would be:  $\frac{3}{2}, \frac{5}{2}, \frac{7}{2}, \frac{6}{1}, \frac{8}{8}$ ; but the worst possible hand would be the following:  $\frac{3}{2}, \frac{5}{2}, \frac{7}{2}, \frac{6}{1}, \frac{8}{8}$ . The latter, however, would seldom occur in actual play.

15. It does not necessarily follow that because a hand is heavy it must therefore lose. Provided it is equally varied, it has an equal chance of success with a light hand. The disadvantage of a heavy hand is shown when the game becomes blocked, and has to be decided by counting.

16. In leading "the down" from a hand consisting of a high double and several light dominoes, lead the double, and afterwards endeavour to obtain command of both ends. Suppose, for example, you hold the following hand:  $\frac{3}{2}, \frac{5}{2}, \frac{7}{2}, \frac{6}{1}, \frac{8}{8}$ ; it would be better to play the  $\frac{8}{8}$ , as your other double can be forced by the aid of the  $\frac{7}{2}$  and  $\frac{6}{1}$ .

17. It will at all times be found a difficult thing, in an equal game and between equal players, for the second player to win.

18. Endeavour to bring both ends as often as you can to a number of which you have several duplicates, for by that means you may block your adversary.

19. In blocking the game, you must be cautious that you do not block it to yourself and leave it open to your adversary.

20. During the game look over the dominoes which have been played, so that you may calculate what numbers are likely to be soon run out, and what numbers your opponent is likely to be short of.

21. Do not push the game to a block if you hold a heavy hand, but play out your heaviest first, and keep both ends open.

22. Use your judgment freely. It is not always the best policy to adhere too strictly to the rules laid down in books. In fact, a wily player will

oftentimes find it expedient to play a speculative, eccentric game, apparently quite at variance with the ordinary "laws."

23. Keep perfectly quiet, attentively watch your opponent's moves, prevent her, if you can, from obtaining an insight into your play.

24. Last (though not least), don't lose your temper.

### ALL FIVES.

This game stands next in popularity to the preceding one. The same number of dominoes are taken, or as many as may be agreed upon, and in many points it is similar. The object of the game is to contrive so to play that the aggregate number of pips on the dominoes at both ends shall number 5, 10, 15, or 20. If they number 5, the player who makes the point counts one; if 10, two; if 15, three; if 20, four.

In order to make our meaning clearer, we give an illustration. Suppose that at one end there is 8, and at the other a five. The next player then plays 8 to the single five, and scores two, because the aggregate number of pips on the dominoes at both ends is ten. If the opponent should follow up by playing the 9 to the 8, she of course scores three.

To give another illustration. Suppose at one end is 2, and the next player places at the other end 4, she scores four for making twenty.

If the game becomes blocked, she who holds the least number of pips counts one.

The custom as to what number shall be "up" is different in different parts of the country. In some places it is ten; in others, fifteen; in others again, twenty. The number ought to be agreed upon at the commencement of the game. In our opinion it adds to the interest of the game to select the lower numbers.

Sometimes the game is so played that she who makes five counts five; ten is made to count ten, and so on; but in that case not fewer than 50 and not more than 100 points should constitute the game.

As we have shown, the material point in which this game differs from the previous one is that you count the fives, from which circumstance it derives its name.

The next best thing to making fives yourself is to prevent your adversary from doing so; and when you do give her the opportunity of making a point, it should only be in order that you may make two or three points yourself.

When your adversary fails to avail herself of a good chance, you may presume that she does not hold such and such dominoes, and from that and like indications, which you must carefully store up in your memory, you will be able to form a tolerably accurate estimate of her hand. You should never omit to turn these indications to good account.

There is only one domino in the whole pack which can be led without the next player being able to make a point from it—namely 3. Always lead that if possible.

If you must play one of two dominoes, either of which you fear you

adversary will turn to her account, of course you must play that by which you think you will be likely to lose the least.

It is good practice occasionally to take a survey of the game as far as it has gone, not only in order to refresh your memory as to what has been played, but also that you may form an opinion, if possible, of what your opponent's "little game" is. If there are good grounds for coming to the conclusion that she holds heavy numbers while you hold light ones, block up the game as speedily as you can, and proceed to count. To understand your opponent's hand is a most important matter, and we do not think we have insisted on it too much. Good players will tell you that they have won many games by watching closely the opponent's moves, and drawing therefrom inferences respecting the dominoes she holds in hand. We need not add, the greatest caution must be used in forming these inferences.

### THE DRAWING GAME.

The same number of dominoes are used, and the lead is drawn for in the same manner in this as in the previously described games.

The difference is that when a player cannot go, she must draw a domino from a pack. If she cannot then go, she must draw another, and so on until she is able to continue the game.

She who plays out first, or in case the game becomes blocked, she who holds the smallest number of pips, wins.

The French have a different way of playing this game. The player who holds the highest double, or in event of there being no double, the highest domino, has the *pose* or lead. The second player, should she be unable to go, may draw all the remaining dominoes except two, which must remain untaken. If she leave more than two, the first player, should she require them in order to continue the game, may appropriate the surplus, still leaving two on the table.

If a player cannot go, it is compulsory that she draw till she gets hold of a domino that will enable her to continue the game.

Each player may take the *pose* alternately, or the winner in the first instance may retain it, as agreed upon.

The French method of counting is also different. When a player has played out, she counts the pips in her opponent's hand, and scores them to her own account. In case the game should become blocked, the player holding the fewest pips scores the number of pips in her adversary's hand to her own account, each pip counting one. A game consists of from 20 to 100 points, according to agreement.

With respect to the English method of playing this game, the general instructions and maxims given on the other games apply equally to this. But a few words must be added with regard to the French play. She who has the highest double is compelled to play first, and cannot draw any more dominoes until it is her turn to play again, but her opponent may draw all but two, which two must remain untaken during the game. But the second player should not draw more than half the dominoes, unless really compelled

by the badness of her hand, as by this means it will leave a chance of her opponent having as many to draw. A good player at times might be justified in taking all but two, for by the calculation and judgment obtained by having them, she might be enabled to play them all before her opponent could play her five or six dominoes, as the case may be. Should the second player hold a good hand, comprising dominoes of every denomination, she should not draw until compelled. If she should happen to draw high doubles, she ought to continue to draw until she holds several of that number.

It is not always the player holding the greatest number who gets out first, because as she has some of almost every denomination, her adversary will keep playing to her, and the odds are that she (the adversary) will be able to play out first. Still, in many games, the one holding the largest number of dominoes possesses this advantage, that she has the power to keep both ends open to herself but closed to her opponent, and she may thus run out.

In order to be able to play out first with the largest number (supposing that only two dominoes remain untaken), you should by all means, and in the first place, endeavour to ascertain what those two are. You may arrive at this in two ways. Suppose you hold so many of a particular number that with those already played they make six out of the seven of that denomination, you must by all means keep playing them.

As an illustration, we will suppose you hold in your hand four threes, and that two other threes have already been played. Now, if you play your threes, and she not being able to play them, because blocked, it is quite clear that one of the dominoes on the table is a three. Then, if those you hold in your hand are— $\frac{3}{2}$ ,  $\frac{3}{3}$ ,  $\frac{3}{4}$ , and  $\frac{3}{5}$ , and you find among the dominoes played  $\frac{3}{2}$  and  $\frac{3}{3}$ , it is, of course, quite safe to conclude that the domino which is left is the  $\frac{3}{4}$ .

The second plan is this. If during the course of the game you have given your opponent opportunities of playing a certain double which you do not yourself hold, you may be certain that is one of the left dominoes.

A little experiment, in order to test the nature of your adversary's hand, so as, however, not materially to injure your own, would often be found more expedient than groping all the while, as it were, in the dark.

By carefully looking over your own hand, you may judge pretty correctly as to whether your adversary's is light or heavy.

It is only by taking into account all these and other nice points that a player can possibly be successful.

Having formed an idea of your opponent's hand, you should make it an object to "run out," or play so that she may be blocked, or that she may be obliged to leave both ends open for you to play out.

Having given some instructions to the player who holds the larger number of dominoes, we must now proceed to give a few hints to the lesser hand.

If, holding the lesser hand, you can contrive to play a few moves at first without being blocked, you ought to be pretty sure of winning; because, by that time, your hand will have become so disproportionately small, that your opponent will have some difficulty in preventing you from playing out without blocking herself. This, therefore, must be one of your main objects.

If the game goes pretty equal, bring out your strong suits. Wherever you are short of a particular suit, if you find that many of that number have already been played, you need not fear that your adversary will be able to block you in regard to it, for you will, of course, infer that they are as scarce in her hand as in your own. Endeavour to bring these rules to bear, reserving to your discretion as to whether you should in anywise depart from them, or use such modifications as the contingencies of the moment require.

### THE MATADORE GAME.

This is a foreign game, and each player takes only three dominoes. You can only play when your domino, added to the one previously played, would make seven. Those dominoes which themselves make that number are termed "matadores," and may be played at any time, regardless of the numbers played to. The double blank is also a matadore. The matadores, therefore, are four in number, viz., 6, 5, 4, 3.

The highest domino leads, and if the next player cannot go, she must draw from the heap until she can. She must cease, however, to draw when there are only two dominoes left. She who plays out first wins, and if the game is blocked, she who holds the least number of pips counts those held by her opponent, and scores them to her own game. The number of points constituting the game is subject to agreement: it varies from 20 to 100.

**MAXIMS FOR PLAYING THE MATADORE GAME.**—This game differs widely from any of the other varieties of dominoes. The element of chance is more largely introduced. The player who happens to obtain more matadores than the other is almost certain of winning, provided the parties be pretty evenly balanced in skill and experience.

The blanks are very valuable at this game—the double blank being the most valuable of all the matadores. It is impossible to make a seven against a blank, so that if you hold blanks you may easily block the game and count.

When you have the worst of the game, and indeed at other times as well, guard against your adversary's blanks, and prevent her from making them, which you may do by playing only those dominoes which fit with the blanks already down.

Never play a blank at the *pose* unless you have a matadore or a corresponding blank.

Keep back your double blank till your opponent makes it blanks all; you can then force her to play a matadore, or compel her draw till she obtains one. It is better to have a mixed hand.

### DOMINO POOL.

This game is played either by partners or by separate players. If played singly by three or four players, each must draw a domino, and she who draws the highest number of pips but one sits on the left of her who draws the highest, the next highest to the left of the second, and so on. If the game is played by partners, the two lowest are partners and the two highest. The partners must sit opposite to each other. The players must draw afresh at

each game, and the stake to be played for, called "the pool," must be placed on the table.

Each player takes five dominoes, and she who holds the highest leads. When one player cannot go, the next in turn plays, and so on. The maxims given in reference to the English game apply equally to this.

The game is scored in the following manner: When one player has played out, the one keeping the score counts the number of pips on each player's remaining dominoes, and puts down the number under each of their names or initials respectively. The same is done if a player cannot go. When the number of any one player reaches 40, 50, or 100, or any limit previously agreed upon, she is out of the game; but she comes in again by what is called "starring." In other words, she must pay over again the amount she originally put into the pool. The method of "starring" is the same as at billiards, from which the game is taken. She who "stars" recommences at the number which the player holds who is in the worst position. Suppose, for example, there were three players—one at 20, one at 40, and the other at 60, 100 being up, the player who "stars" must recommence at 60. She can only "star" once, and that must be at the time she is out. Each player has the option of "starring," except the last two, who must divide the pool, or they may agree to play it out. Still, unless an agreement to play out is made beforehand, the last two must divide.

INSTRUCTIONS FOR PLAYING DOMINO POOL.—When this game is played by separate players, and one becomes greatly ahead, the other three can combine, so as to render her chance of winning uncertain. The necessity of this combination is clear. If she is allowed to win, the competition for that game is over; but if, by combining, the other players can keep her back a little, they obtain for themselves a better chance of success. The player who is ahead will also do her best to throw obstacles in the way of the player in the next best position, as she becomes a dangerous competitor. The two in the worst position will in like manner combine against the two ahead. The necessity for this combination does not arise till the game is somewhat advanced, as at the beginning all the players are on a level; and the relative position of the others is of no moment till the game becomes advanced. It is of very little use for *one* player to attempt to stop the progress of another who is too far ahead, unless the others combine with her. If, through ignorance or anything else, they continue to play for their own hands, you must do likewise. Although, if you attempted by yourself to stop the player who was ahead of you, you might succeed, that success might be purchased at the risk of your own chance in the game. As in this game you have only five dominoes out of twenty, your power of influencing the game is very much diminished, and there is not quite so much scope for the exercise of your judgment as in other single games where you hold six dominoes out of twelve. Your opponents are sure to hold some of the remaining numbers in which you are strong; so that the injury you can in other games inflict by having a preponderance of a particular number will be greatly diminished here. Therefore it is scarcely worth your while endeavouring to retard your opponent's game when you have three of a number, unless some of that



number have already been played; because if you keep those numbers until you are called upon to play to them, you would do infinitely more towards crippling their game than if you were to lead from them. On the other hand, should you hold *more* than three of a particular number, do not wait for this chance, but lead it on the first opportunity. If you find that you and one of the other players hold nearly all of a particular number, combine with her, in order to exhaust the hands of the other two. In doing this, you are of course only studying your own interest. It is better to adopt this plan when you have reasons to believe you are already on the safe side. If you hold one or two doubles, with duplicates of either, retain the latter until you first get rid of the doubles; but if you hold three or four duplicates along with a double, play the duplicates at once, as you will be able by your own hand to force the double at any time. If you are short in any particular number, get rid of your heavy dominoes as quickly as possible. In playing off you may lead with a light domino, if you hold one or more of the number; but if not, you must lead a higher domino, in order to diminish the number of pips in your hand. If you hold a heavy hand with high doubles, or a hand which admits of little or no variety, or without any particular preponderance, you must play a safe game, and sustain as little loss as you possibly can under the circumstances. Endeavour to balance the inferiority of your hand by drawing the other players along with you.

When there are only three players left, and one is greatly ahead, while another has starred, it should be the object of the third player to prolong the game as much as possible, as she still has a chance to star.

When two players are in advance, the two behind must avoid embarrassing each other in their combinations against the other two. It is better for them to use their joint efforts against one at a time, as the attack, if concentrated in that way, would be stronger and more effectual. Should one of the advanced players get embarrassed, endeavour to embarrass her still more, for you may be sure her competitor will not assist her.

It will be perfectly understood, however, that in playing with partners, the object of each partner will be to play as much as possible into her partner's hands and to cripple her opponents. If it is your lead and you have a good hand, you must try and win with it, regardless of your partner's position. So, on the other hand, if it is your partner's down, and you have a bad hand, you must be content to sacrifice your own chance in order to increase hers. In the partner's game it is generally good play to lead from a strong suit, for as this is a generally understood rule, your partner will accept the hint, and will not fail to "return your lead," or, in other words, to play into your hands as much as possible. If you hold some doubles, with others of the same number, you may—contrary to the single game—play the latter first if it suits your hand, as your partner will be sure to assist in getting out your doubles.

We might continue these directions and hints *ad infinitum*, but experience, after all, is the best teacher; and—recommending the learner to practise assiduously and play carefully—we dismiss this portion of our subject.

## THE WHIST GAME.

This game resembles in some points the game of cards from which it takes its name. It is played by four persons—two partners on each side. The partners, as usual, sit opposite to each other. The whole of the dominoes are taken—seven by each player.

It is best to lead from your strongest suit. By this and such other indications you will enable your partner to form an opinion as to your hand, by which she will be guided very much in her play, and as the game proceeds each must tax her recollection as to who played such and such a domino, and how the game stood at that particular time, so as to form a judgment as to the motive of such play, &c. The general instructions given previously will apply in great measure to this game, particularly those given in reference to the Pool Game.

## THE FOUR GAME.

In this game, which is played by four persons, each player takes seven dominoes; and she who plays out first, or, if the game becomes blocked, holds the least number of pips, wins the hand, and draws a certain stake from the other three.

Endeavour to keep your hand even, so as to be ready at any number, or (and in this you must be guided by the nature of your hand) play to keep your strongest suit in hand until those of the same suit held by other players are out. By this means you may oftentimes be able to play out or shut the game, as you find most expedient.

## SEBASTOPOL GAME.

This game is played by four players, each taking seven dominoes. The player holding the double six plays it, and takes the lead. Each player must play a six to it. She who cannot loses the turn. The dominoes are played in the form of a cross the first round, after which the players alternately play at either of the four ends. She who has the last domino, or in the event of more than one player being left with dominoes when the game is shut, she who holds the greatest number of pips, pays a certain amount to the winners. Endeavour to get rid of your heavy dominoes, and put obstacles in the way of your adversaries running out.

## TIDDLE-A-WINK GAME.

This is a very amusing game, and suitable for a round party.

If six or more play, each takes three dominoes. The 3 is then called for, as in the French game, and the person holding it leads with it. If it is not out, the next highest double is called forth, and so on downwards until a start is made.

In this game, she who plays a double, either at the lead or at any other part of the game, is entitled to play again if she can—thus obtaining two turns instead of one. The game then proceeds in the ordinary way, and she who plays out first cries "Tiddle-a-wink!" having won. In the event of the game being blocked, she who holds the lowest number of pips wins.

## THE GENTEEL LADY ALWAYS GENTEEL.

For this French game, which is a very funny one, you must have a certain number of spills, or twisted pieces of paper intended to represent horns. Whoever makes a mistake in the game, which is really difficult, has for each mistake a paper horn stuck in her hair, so placed that it will shake when she moves.

The game begins by one of the party saying to her right-hand neighbour, "Good morning, genteel lady, always genteel. I, a genteel lady always genteel, come from *that* genteel lady always genteel (*here she points to the young lady on her left hand*), to tell you that she owns an eagle with a golden beak."

The next player bows, turns to the one on *her* right hand, and says, "Good morning, genteel lady, always genteel. I, a genteel lady always genteel, come from *that* genteel lady always genteel, to tell you that she owns an eagle with a golden beak and *silver claws*."

The young lady bows and turns to her neighbour, saying, "Good morning, genteel lady, always genteel. I, a genteel lady always genteel, come from *that* genteel lady always genteel, to tell you that she owns an eagle with a golden beak, silver claws, and a *lace skin*."

It is very likely that *this* speaker will make one or two mistakes in repeating the sentence. If so, she must be dressed in one or two paper horns, and the next speaker has to say, "Good morning, genteel lady always genteel. I, a genteel lady always genteel, come from *that* two-horned lady always two-horned, to tell you that she owns an eagle with a golden beak, silver claws, lace skin, and *diamond eyes*."

Probably this speaker will make several mistakes, and receive *four* paper horns on her head.

Then the speaker after her must say, "Good morning, genteel lady, always genteel. I, a genteel lady always genteel, come from *that* four-horned lady always four-horned, to tell you that she owns an eagle with a golden beak, silver claws, a lace skin, diamond eyes, and *purple feathers*."

Each of these sentences goes round the entire circle, always taking in more "horned ladies," till at last the sentence will become—

"Good morning, four-horned lady always four-horned. I, a three-horned lady always three-horned, come from *that* two-horned lady always two-horned (*pointing to the left*) to tell you that she owns an eagle with a golden beak, silver claws, lace skin, diamond eyes, and purple feathers."

Every mistake (even the difference of a word, or omitting to point to the left, or to bow after each speech) incurs a *horn*. The best plan for playing this game is to let the same player begin each fresh sentence—for instance, to send "the eagle with the golden beak" round first, then the "silver claws," and so on. No lady must be called "genteel" who wears the paper horns, and any mistake in the number she wears incurs another horn for the blunderer. At the end each horn is ransomed, as forfeits are.



### DUMB CRAMBO.

Half the company leave the room. While they are absent, the others fix on a verb which the absent ones are to guess and perform. By and bye, when their decision is made, they call in the leader of the outside party, and say, "The verb we have chosen for you rhymes with *pie*" (or any other word chosen.) The leader retires, and discusses with her followers what the verb can be. It is best to take those which will rhyme with the noun given, in alphabetical order. "Buy" would come first for "Pie." The party enter and begin to buy of each other. If right (that is, if "to buy" was the word chosen), the spectators clap their hands; if wrong, they hiss. Speech on either side would entail a forfeit. If hissed, the actors retire, and arrange what next to do. "Cry" would be the next rhyme, or "dye," or "eye," or "fly," or "hie," or "sigh," or "tie," all of which are acted in turn, till the clap of approval announces that the guess is a successful one. Then the spectators go out, and become in their turn actors, in the same manner. A great deal of the fun of this game depends on the acting and on the choice of the verbs; but it is almost sure to cause great amusement.

### PAIRS.

One player personates a lawyer. The others choose partners, and sit down in pairs in two rows facing each other. The lawyer walks down the rows, and asks a question of any one whom she pleases. This question must

be answered by the partner of the one addressed. If she inadvertently replies herself, she has to pay a forfeit. Example; Ada is Lawyer; Mabel and Charles, Mary and Anna, Fanny and Edith, Edward and Anthony, are partners.

ADA. Mabel, what is your opinion of Tennyson's "Queen of the May?"

CHARLEY. She prefers the nursery rhyme, "Four and twenty Blackbirds."

MABEL. Oh, Charley!

ADA. Pay a forfeit, Mabel, for speaking.—Edith, are you fond of flowers?

FANNY. She likes plum pudding better. (*Edith is silent.*)

ADA. Mary, do you think your hair very pretty?

ANNA. She is not so silly.

ADA. Edward, whom do you think the greatest man in profane history?

ANTHONY. Oliver Cromwell.

EDWARD. Oh, Anthony! you know I detest him. I am a regular Cavalier.

ADA. Please pay two forfeits for such a long speech!

The fun of this game is the way in which the partners try the patience of those who are obliged to be silent, by answering absurdly for them. Also, it is difficult, as the game progresses, to keep from answering a question directly addressed to oneself.

### THE MAGIC ANSWER.

This trick should be known to only two of the company. It is this:—One person goes out of the room while the others fix on a word which she is to guess on her return. There is an agreement between the two that the *right word* shall be named after anything with four legs—as a table, a chair, a dog, an elephant, &c., &c. For example: A lady goes out of the room; the company fix on the word "watch;" she returns; her accomplice in the trick says:

Query. Did we name a rose?

Answer. No.

Q. Did we name a book?

A. No.

Q. Did we talk of yourself?

A. No.

Q. Of a bird?

A. No.

Q. Of a ship?

A. No.

Q. Of a *sheep*? (four legs)

A. No.

Q. Of a watch?

A. *Yes.*

### THE TRADES.

This game requires a little judgment in the selection of an extract or story to be filled in.

Ada, Mabel, and the other children are seated round a table. Ada has been chosen as "President of the Board of Trade," in which distinguished position she holds a pencil in her hand, and has a book and paper lying before her ready for use.

ADA. I will read to you the trades you have each chosen:



FANNY, Doll Merchant.  
 ANNA, Perfumer.  
 MARY, Baker.  
 CHARLEY, Bookseller.  
 EDWARD, Brewer.

HONORA, Seedsman.  
 EDITH, Fishmonger.  
 MABEL, Pastrycook.  
 JESSY, Milliner.  
 ANTHONY, Grocer.

Now I am going to write an extract from this book, "Jesse's Gleanings." Every now and then I shall point my pencil at one of you; then you must give me a noun which belongs to your trade, and I shall insert it in the place of nouns in the book, of which I am only allowed to keep five. If, when I read my extract, it makes nonsense in your opinion, you will each pay a forfeit. You will also pay a forfeit for slow answers and for giving nouns which do not belong to your trades. Now I shall begin.

Ada wrote a few words, and then pointed her pencil at Fanny, who replied "Dolls;" Honora gave *Scarlet Runners*; Anna, *Perfume*; Edith, *Sprats*; Jessy, *Pork-pie hats*; Mabel, *Whipped creams*; Charley, *Library*; Edward, *Cask of treble X*; Anthony, *Loaf of sugar*.

"Now," said Ada, "you shall hear our extract, and judge whether you think it on the whole instructive or amusing. If it is either, we pay no forfeit." And she read—

"It is a curious and extraordinary fact that *dolls* are nowhere to be found in *scarlet runners*. One would think that *perfume* was particularly well suited for *sprats*, as I have frequently observed them to be most numerous in *hot rolls*; at least this was the case in some *pork-pie hats* in Staffordshire, where they were exceedingly numerous, and made larger *whipped creams* than I have seen in any other *library*. A *cask of treble X* and a *loaf of sugar* are sometimes found in the nest of the mole."

Do you think they each paid a forfeit, or not?

## CROSS QUESTIONS AND CROOKED ANSWERS.

The players sit in a circle. Ada begins. She whispers a question to Mary, who answers it. Then Mary whispers a question to her next neighbour, and receives an answer. These whispers go all round the circle. Then Ada repeats the question addressed to her by the last player, and gives Mary's answer to it. The rule of the game being that every *alternate* answer is given, *not* the direct reply to the question. For example: Ada repeats the question asked of her, and answers it with the words Mary replied to her own (Ada's) query.

ADA. I was asked who first discovered the shores of America? The answer was, "Serpents and alligators of enormous size."

MARY. The question asked me was, What creatures infest the shores of the River Plata? The answer was, "Young ladies just out of the school-room."

HONORA. I was asked, Who suffer most from being shy? The answer was, "The gorilla."

MABEL. I was asked which was the biggest monkey. The answer was, "Anthony!"

ANNA. I was asked which playfellow I loved best. The answer was, "The tongs and shovel."

FANNY. I was asked which are the most ornamental things in the room. The answer was, "Ada and Mary!"

ADA. Very sensible!

EDITH. I was asked which of my friends I thought the prettiest. The answer was, "Mamma's pig."

EDWARD. I was asked who was the greediest person I know. The answer was, "Christopher Columbus, or else the Northmen."

Our little readers will see in this example how much mirth may be obtained from cross questions and crooked answers.

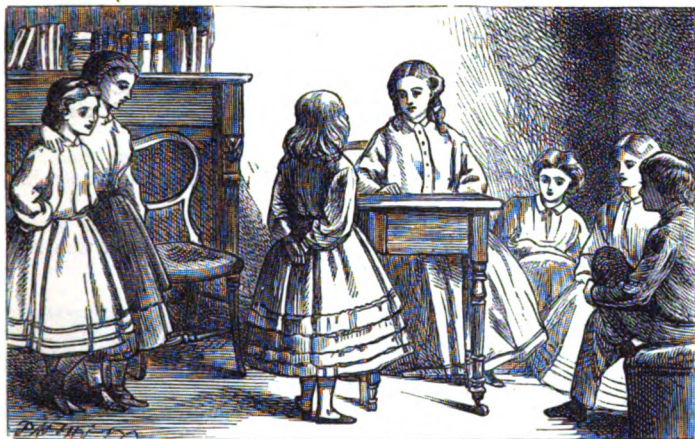
## JUDGE AND JURY.

*An Historical Game.*

The players elect a Judge and three Jurymen.

Before the game begins, the players (except the judge and jury) take the names of historical personages—as Alfred the Great, Queen Philippa, &c., &c. The judge calls up a player, and questions her as to her reign or life. For any mistake in answering, the player must pay a forfeit to the jury, who inflict due punishment upon her for her lack of memory. We will see how the children of Marston played this game. Honora was chosen judge, because she was the eldest. Her three jurymen, whose office it was to detect mistakes and take forfeits, were Edith, Ada, and Edward.

HONORA (*Reading from a paper*). I find on my list, Sir Philip Sidney, Semiramis, Philippa, Joan of Arc, Queen Margaret of Anjou, Elizabeth, Mary of Scotland. Come before us, Sir Philip Sidney, and tell us in whose reign you lived.



ANTHONY (*as Sir Philip Sidney*). I lived in the reign of the great Queen Elizabeth, and my home was in Kent.

JUDGE. What did you do in your lifetime?

ANTHONY. I wrote books, and I fought and fell at Zutphen.

JUDGE. On which action of your past life can you look back with most pleasure?

ANTHONY. Giving a cup of cold water to a dying soldier on the field of battle; that was self-denial.

JUDGE. You may go, without a forfeit. Now, Semiramis, what have you to say for yourself?

MARY. I was very ambitious, and have no good to say for myself.

JUDGE. Where did you live?

MARY. In Nineveh and Babylon. I built Babylon chiefly myself.

JUDGE. Relate your story as well as you can.

MARY. I showed King Ninus how to take a city, but he must have been very stupid not to think of such an easy plan himself. He married me. I asked him to let me be queen for a day, and the first use I made of my power was to cut off his head. I fought a great deal when I became queen all alone; but at last I was killed.

JUDGE. Your story is quite correct, I believe, but the jury wish to say something.

JURY. We think Mary must pay a forfeit for choosing so bad a queen's name. (*Mary pays it*).

JUDGE. Queen Philippa, come forward.

Queen Philippa relates her story, but as she forgot her favourite poet, Chaucer, when she was questioned about him, she had to pay a forfeit.



Joan of Arc forgot the name of the king for whom she fought, and had to pay a forfeit.

Queen Margaret could not repeat the names of her twelve battles, and paid a forfeit.

Elizabeth was correct in all matters, like a wise queen as she was.

Mary of Scotland forgot where she had been brought up, and also paid a forfeit.

Then the judge and jury were changed, and the game began again.

Players should be sure to choose characters that they are well acquainted with, as it is unpleasant to make mistakes.

We assure our young readers that we have seen children, from seven to twelve years old, play this game very prettily, and we found that it impressed History firmly on their minds.



### ADONIS PUT UP TO AUCTION.

In this game, two players, the Auctioneer and the Salesman, agree as to the thing to be offered in exchange for Adonis, but this they keep secret between themselves.

Then as many slips of paper are cut as there are players. On one the name of "Adonis" is written. They are folded up and put into a bag. The players draw them, and he or she who draws Adonis is seated on a chair in the middle of the circle (the auctioneer beside him), and is put up for sale by auction.

The AUCTIONEER says, "Here is Adonis, remarkable for his great beauty and love of hunting. What will you bid for him?"

Each player has five bids alternately; but she must not bid money.

1ST PLAYER. I will give a bunch of roses for Adonis.

AUCTIONEER. A bunch of roses? who bids for Adonis? Going, going for a bunch of roses. (*He raises his hammer—which may be a pencil.*)

2ND PLAYER. I will bid a lump of sugar.

AUCTIONEER. A lump of sugar for Adonis? Going, going for a lump of sugar.

3RD PLAYER. I will bid an old grey goose.

AUCTIONEER. Going, going, &c., &c.

4TH PLAYER. I will bid a postage stamp.

And thus they go on bidding, till one of the players says, "I will bid a looking-glass," which being the thing the auctioneer and seller had this time agreed on, Adonis is knocked down to her, and is bound to do whatever she commands, such as sing a song, tell a story, hop round the room, &c., &c. Should the right price not be given by the time the bidding has gone round five times, the auctioneer tells what it is, and says, "I have bought Adonis in, with a ring, a bouquet," or whatever has been fixed on between him and the seller. Then all the circle have to pay forfeits to Adonis.

## THE POST.

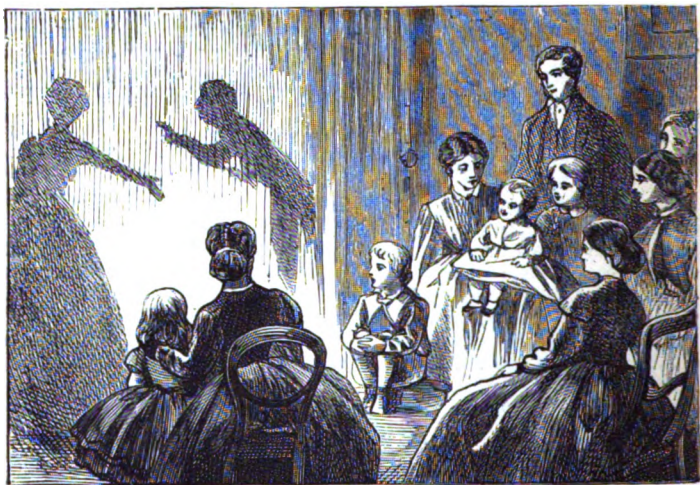
*The whole Party.*

The party are seated in two rows facing each other down the room; one person is left chairless, and becomes Postman. He holds a piece of paper and a pencil, and asks each person to take the name of a post town, English or foreign, which he writes down.

When every one is seated, the postman calls out, "The post is going between London and York," or any other two towns chosen as names by the players. The moment he speaks, the persons so named exchange seats rapidly, the postman, of course, trying to get one of their seats. When he says, "The general post is going out," everybody changes seats, and in the scramble he manages to get one; but, as there is always one chair less than the number of the players, somebody else is left out, and becomes postman. Any "town" not answering to its name pays a forfeit.

## THE WILD BEAST SHOW.

A screen must be placed at the end of the room; behind it is put a cheval glass and a light. The showman stands before the screen, and offers to exhibit his wild animals to any person who will promise not to describe what he has seen when he comes out. Then the person who gives the promise and demands admittance, is asked what animal he wishes to see. On his naming one, the showman proceeds to describe it. The description should be very witty, and should have some application (either complimentary or satirical) to the person who wishes to see the show. The person is then admitted, and is shown *himself* in the looking-glass.



## SHADOWS.

This amusement, which was very popular for several winters at the Crystal Palace, is done by fixing a white sheet tightly across the room, and placing a large covered lamp behind it, *on the floor*. The actors dance and act behind the sheet, on which their magnified shadows are cast by the lamp. Occasionally they jump over the lamp, and thus appear to disappear by running up into the ceiling. A very amusing pantomime may be thus represented. We think it is improved by the Lord of Misrule, as a "Chorus," announcing the purport of each scene. A skilful arrangement of light by any scientific friend present will multiply the effects in a very wonderful and pleasing manner.

The best kind of pantomime is one of an old miser, who has a dancing daughter. She dances round him while he hugs his money bags; finally, she jumps over the lamp, and appears to run up to the ceiling, and disappear. The old man follows her; a thief breaks in to steal the bags of gold; he is pursued by a comrade, who wishes to share the spoil. They fight, but are both startled by the entrance of Columbine's lover, Harlequin, and also run up to the ceiling. Of course the actors must promote the delusion by their gestures, moving their hands and feet as if climbing upwards. A dance between the lovers, and their final disappearance in the ceiling, is a good *finale*.



### THE GIANTESS.

This is a very amusing deception. A tall young lad is dressed in a petticoat. Then a large umbrella is covered over its silk ribs with a gown and cloak; a ball, for a head, is tied on the point of the umbrella-stick above the dress, and a bonnet and thick veil put on it. The umbrella is partially opened, so that its sticks set out the dress and cloak as a crinoline does. The player gets under it, and, holding the handle up as high as he can grasp it, appears like a gigantic woman. Somebody knocks at the hall door to pretend that there is an arrival; and a minute or two afterwards the footman is to open the drawing-room door and announce "Miss Tiny Littlegirl." The giantess then walks into the drawing-room, to the amazement of the company, bows, &c. It has a good effect to enter holding the umbrella-handle naturally, and then to raise it by degrees, which will give a comical appearance of growth. We have seen the giantess thus appear to rise till she peered over the tops of the highest pictures in the room. The effect is exceedingly funny. She may talk to the company also, bending her head down towards them, and speaking in a shrill tone of voice.

In clever hands, the giantess causes a great deal of fun.

### THE GREAT ORATOR.

A Lord of Misrule is elected; he invites the guests to come and hear Mr. Gladstone, Mr. Disraeli, or any other distinguished orator, on any given subject. It requires two persons to deliver the oration. The one who is

to speak puts his arms behind his back ; a shorter friend (well concealed by the window curtains) passes his arms round the speaker's waist, and supplies with his own, the latter's want of hands. He is then to gesticulate to his friend's words, and the fun of the performance consists in the singular inappropriateness of the action to the speech, the invisible gesticulator making the orator absurd by his gestures. A table placed before the speaker, and a good arrangement of the curtains, makes the illusion very perfect. The speaker must be able to keep his countenance, as his gravity is likely to be severely taxed by his friend's pantomimical illustration of his speech.

### A BLIND JUDGMENT.

A young lady is blindfolded. The Lord or Lady of Misrule then brings the players, one by one, up to her, and requires her opinion of them. She is not restored to sight till she has given a just opinion of some one, in accordance with the judgment of the company. Those presented must be quite silent, and endeavour to step lightly, so as not to let her guess whether she is giving her opinion of a young lady or a gentleman.



### THE DWARF.

A young lady's hands are to be put into a child's socks and little shoes. She is to disguise her face — if known to the company — as effectually as possible. To do this, a *piece of black sticking-plaster put over one of the front teeth*, or over both, will prove very effectual ; a little rouge or whiten-

ing the face will also help. Then she puts on a bonnet, shawl, &c. Another player stands behind her, and passes her arms round her. They stand in the window thus: the curtains are drawn so as to conceal the young lady behind entirely, except her arms, and a table is placed in the front of both. The front player puts her hands, dressed in shoes, on the table; the little girl behind her supplies, as we have said, arms and hands to the figure; and, if well managed, when the visitors are summoned "to see the dwarf who tells fortunes," they will be struck by the illusion of the pigmy apparently standing on the table.

The dwarf is expected to be funny enough to make the guests laugh heartily.

### FAMOUS NUMBERS.

We will tell you how this game was played by the Marston children one Christmas, assisted by Papa, Mamma, Aunt Mary, and Uncle Harry.

The fire blazed high up the chimney, casting a rosy light on many happy faces, and giving quite a ruby hue to little Amy's small white arms and fair long hair, as she sat at her Papa's feet on a low stool.

"Papa," said Ada, "how nice it would be if you and Mamma, and Aunt and Uncle, would have a game of Famous Numbers with us, till the dressing bell rings."

"I have no objection, my dear," replied Papa, "if you will tell me how to play. Famous Numbers did not belong to the days of *my* childhood, I am afraid."

ADA. Well, Papa, this is what we must do: I or Charlie must write on slips of paper some numbers—as many as we please. We twist our papers up, put them on one of the china plates, or in a bag, as we can, and you each draw one. Then you open it, and say, "My famous number is Twelve (or whatever the number is). There were twelve famous Cæsars." If you don't know enough famous things or people to make the number, you pay a forfeit; but that will be impossible for you."

PAPA. I am by no means sure: I think it very likely that I shall pay the first forfeit, myself. However, I am ready to try if I can escape.

Ada and Charles then prepared their pieces of paper; handed them round, accepted the two finally left, and resumed their seats. Baby Amy would insist on taking a paper like the rest, so Papa promised to help her in finding her famous number. Mamma was to open hers first.

MAMMA. I have drawn the famous number of Four. I think Spring, Summer, Autumn, and Winter are a famous four.

ADA. I have drawn a famous number; it is Three. Oh! I know who shall be *my* famous three—

"The dauntless three who kept the bridge of old."

PAPA. Can you repeat the lines of the Lay, Ada?

ADA. I think I can.

"Then out spake brave Horatius,  
The captain of the gate,  
'To every man upon this earth  
Death cometh soon or late;

And how can man die better  
Than facing fearful odds  
For the ashes of his fathers  
And the temples of his Gods?

"Hew down the bridge, Sir Consul,  
With all the speed ye may:  
I, with two more to help me,  
Will hold the foe in play.  
In yon strait path a thousand  
May well be stopped by three:  
Now who will stand on either hand,  
And keep the bridge with me?"

"Then out spake Spurius Lartius,  
A Ramnian proud was he:  
'Lo, I will stand at thy right hand  
And keep the bridge with thee.'  
And out spake strong Herminius,  
Of Titan blood was he:  
'I will abide on thy left side,  
And keep the bridge with thee.'"

AUNT MARY. Very well, Ada. I have drawn a famous number. My number is Twelve. As your Papa has mentioned the twelve Cæsars, I will give the twelve months of the year.

CHARLEY. I have drawn a famous number—Nine. Of course I give the nine Muses.

MARY. I have drawn a famous number; it is Two. Our two greatest generals, Marlborough and Wellington.

ANNA. I have drawn a famous number; it is Five. The five Senses are very famous—Seeing, Hearing, Smelling, Tasting, and Touching.

FANNY. I have drawn a famous number—Seven. Seven stars in the Pleiades; they are called "Seven stars" sometimes.

MABEL. I have drawn a famous number—Eight. May I say an octave in music? It is the most famous eight I know.

PAPA. I think we will not make you pay a forfeit this time.

EDITH. I have drawn Eleven. I can't think of an eleven. (*Anthony whispers to her*). Oh, yes! The "All England" Eleven.

AUNT MARY. I have drawn Six. Well! Monday, Tuesday, Wednesday, Thursday, Friday, and Saturday—famous for work, if for nothing else.

ANTHONY. I have drawn Ten. The Decemviri who misgoverned Rome.

BABY AMY. See what mine is about.

PAPA. It is One. Tell us a famous one, Amy.

BABY. My own Mamma.

ADA. But that won't do. It must be something really famous. Uncle Henry, *you* say it.

UNCLE HENRY. Allow me to name the One who stands alone—GARI-BALDI.

### CHARADES IN PANTOMIME.

These charades are always played *impromptu*, and are often excessively comic. For the example word, let us take "Knighthood."

One of the players—a brother or cousin—dresses himself as Don Quixote





(for the Knight), with a basin on his head for a helmet, the poker for a lance, the fire-guard for a shield, &c., &c., as he can. He enters the room marching, followed by his squire, Sancho Panza, who must be dressed in a motley costume and be very fat. As they enter, a lady kneels to the knight, and, clasping her hands, mutely implores his aid to defend her from a cruel tyrant who holds her captive. As the knight raises her, the cruel tyrant rushes out from behind a curtain to carry her away. The Don shakes his lance at him, and the tyrant, vanquished, falls to the earth. The knight leaves him there, and quits the scene victorious, leading the lady with reverential courtesy by the hand. Sancho turns and shakes his fist at the tyrant.

In the next scene, a lady enters with an immense ugly Hood on her head. Two other ladies, who meet her, seem surprised, and follow her, looking at her hood. Suddenly she turns it back, and displays on it a written paper—"The latest fashion." Ladies faint in dismay.

The whole "Knighthood" is performed by the Don knighting a youth. Ladies fasten on his spurs and tie his scarf, &c. He kneels. The Don touches him on the shoulder with his sword. He rises, and a scene of dumb congratulation follows. Then the whole party advance and form a

GRAND TABLEAU :

<i>Right side.</i>	<i>Centre.</i>	<i>Left side.</i>
TWO LADIES.	DON QUIXOTE.	YOUNG KNIGHT.
Sancho Panza,	Young Knight's Squire,	
kneeling.	kneeling.	

This may be made very laughable if well performed.



AGA-MEMNON is a good word, only not so laughable as Knighthood. *Pirate* is another. *MAT-RIMONY*, again, is a good one. We leave it to the ingenuity of our young readers to find out how they can be performed.

We have seen *PEN-ELOPE* very nicely done by quite young children. *Pen* was, of course, an author finding a bad pen hinder him sadly, trying and rejecting, mending and splitting quills with much energy. His sisters offer him quill pens, steel pens, gold pens—all in vain! He rises, tears his hair, and paces the room in great agitation, while they look on, in distress at not being able to help him. A bright idea strikes him: he rushes to the table, seizes the first pen he can find, and writes smilingly and with great rapidity. The sisters raise their hands in amazement at the eccentricity of genius. The three-syllabled word is made *two* syllables for the charade. *Elope* is a boy running away from home with his sisters. They should be tiny children, who wish to run away by the train: they count their money, and make signs of what they mean to do, finally running away at the first sight of their nurse. "*Penelope*" is a little girl (sitting) pulling out a crochet web: she sighs often, and sometimes pauses and wipes her eyes. Suddenly a loud barking is heard: she springs up—*Ulysses* and *Telemachus* enter: they receive her welcome, and united, form a grand tableau, *Penelope* showing her web to *Ulysses*, and explaining what she had done to delay her second marriage. The costumes should be classical and pretty.

### WORDS AND QUESTIONS.

ADA. As we have so many players past twelve years old this evening, I think we had better have a game of Words and Questions.

COUSIN WALTER. You must first tell us what it is. I do not remember ever seeing it played.

ADA. We are to write on slips of paper a number of questions (let us each write one), fold them up, and put them in a hat or basket. Then we take an equal number of papers, on which we write nouns—a noun on each slip. Now let us do that first. Charley has brought us some paper and pencils. We will write a question and a noun each.

For a few minutes afterwards silence prevailed, while the merry party assembled round the drawing-room table, busily concocted and wrote down their questions. An occasional, but instantly suppressed titter intimated that some few at least were of a laughable description.

WALTER. Well, Ada, our papers are written; what shall we do now?

ADA. Charley will hand them round separately, and we must each draw a question and a noun. Then we are to answer the question in rhyme, and bring the noun into the answer.

PHILIP. It sounds rather difficult. How if I am not poetical?

ADA. The more absurd your rhymes are, the better; they will afford us more cause for laughter.

CHARLEY. Well, mine won't disappoint you, then.

WALTER. But I don't approve of being laughed at.

CHARLEY. Then give us something very "stunning." But, in reality, no

one can be laughed at personally; for the questions and answers are read out by Nora, who will not tell us the author's name of any one of them, even if she recognizes the handwriting.

They answer their questions. Each player, as his slip is written, rolls it up and puts it into a basket before Nora, who at last shakes them about and selects one at hazard.

NORA. The question is—If you had your choice, which would you be—a dragon-fly or an eel? The word to be brought into the answer is, *Roses*.

The dragon-fly at eve reposes  
Upon the clust'ring scarlet *Roses*;  
The eel lies buried in dark green slime:  
Can you ask, cousin, which choice is mine?

PHILIP. Bravo! that's first-rate.

NORA. Here is another. Ah! I guess the author by the style. Word—*Rope-dancer*. Question—Which do you prefer—*Cæsar* or *Pompey*?

Great were old *Cæsar* and *Pompey*,  
Seldom their equal you see;  
Great is *Blondin* the rope-walker;  
Which is the best of the three?  
Answer *me*!

ADA. I never could write rhymes.

NORA. Oh! it will do very well. What is here? Word—*North Pole*. Question—What do you think of the *Crystal Palace*?

From the *North Pole* to the *South*  
You won't find such another;  
This is the true opinion  
Of your very intelligent brother

ADA. That's *Charley*!

CHARLEY. You are not to reveal authorships—we are all *Great Unknowns* here. But it is as good as the last.

NORA. This is a nice one: What do you think of travelling in an air balloon? The noun drawn was *Cobweb*. The rhyme on the two is—

I confess I should not greatly care  
To float like a cobweb in the air.

Next comes—How many feet has a spider? Word—*Nonsense*.

Not being a naturalist, like *White of Fel-*  
*Borne*, I really cannot such wonders tell.  
It was nonsense to ask a fel-  
Low such stuff. Farewell.

NORA. Oh! what stuff! Well, here is quite a poem! Word—*Cigar*. Question—What do you like best to do in the evening?

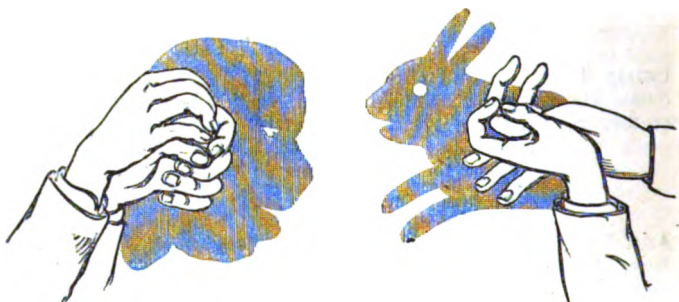
How sweet at dewy eve to rove  
When brightly shines the vesper star,  
And, wandering through the moonlit grove,  
Calmly to puff the mild cigar.

Let *Asia* boast her scents afar,  
Her spicy groves that flout the sky;  
More sweet the clouds from my cigar  
Than all the balms of *Araby*.

Very well; but word and question *filled*. Here is a short one. Word—Don't. Question—Do you like croquet?

Don't I?  
Just try!

Thus the game went on. But we will not inflict all the rhymes perpetrated that evening on our young readers. We believe that their own ingenuity and wit will enable them, from these specimens, to comprehend and play this excellent game.



### HAND SHADOWS.

It is not possible to give verbal directions for producing these amusing hand pictures, therefore we offer the following examples to our young readers, who will find it a very amusing winter evening entertainment to try and copy the position of the hands given, and thus cast shadows of objects on the paper of the room. We need scarcely say that the shadow artist must stand *between* the lamp and the wall.

### PAPER SHADOWS ON THE WALL.

These are made by getting a head or figure either sketched or printed, and cutting out all the light portions of the face. Held to the wall with the light behind them, these cuttings-out present very nice pictures of light and shade.

### SHADOWS.

This is a very pretty game for girls. A white sheet is suspended at one end of the room. The shadow-seeker sits facing it on a very low stool: if the player happens to be a brother, he will not mind sitting (Oriental fashion) on the carpet; as, the lower the gazer is, the less shadow he or she will throw on the sheet. There must only be one lamp in the room, all other lights must be extinguished, and it must be placed about six or seven feet *behind* the shadow-seeker. Then one, two, or more of the players must



draped themselves with shawls, raised and extended their arms, or in *any* way disguise themselves, so that their shadows thrown on the sheet may be deceptive, and puzzle the gazer, who has to guess, as they pass between his back and the lamp, whose shadow he beholds. A little ingenuity on the part of the substances will make very laughable or very pretty shadows. Loosening the hair and letting it fall over the face; bending a finger over the nose to make it look aquiline in the shadow, and sundry other tricks, suffice to puzzle the guesser excessively. One shadow—as of a gigantic bat, may be made by enveloping the player in a sheet, which by extending her arms she may make into huge wings. She must then pass sideways—that is, with her face turned towards the sheet, between the gazer and the lamp. A glance behind her entails a forfeit on the gazer, who must guess in all honesty whose shadow she beholds. The task, is very often, a difficult one. When the right substance of a shadow is named, *she* becomes shadow-seeker in place of the previous player, and he pays a forfeit.

One very funny disguise may be made by those who can imitate the shadows made by fingers on the wall. (See page 94.) A shawl spread out, put on over the head, or pinned under the chin and let fall round the figure, will disguise the form of the substance very well. The shawl should be pulled sufficiently forward to hide the profile. Then the player's hand may be raised, close to it, and her fingers may make a duck's head, rabbit, &c.

# CHRISTMAS GAMES.

## PHILIPPINE.

This is a German game. If at dessert, or any other almond-eating period of the day, you find twin almonds in one shell, you ask a friend or playfellow to "Philippine" with you. She consents, and you give her one of your twin almonds. After this you must be careful to take nothing from her hands, for if you do, she will instantly exclaim "Philippine!" and you will have to give her whatever you have agreed on previously. If, however, you can get her to take anything from you, and *you* exclaim "Philippine," it is you who win. But you must be ready to *show* your Philippine, or you will lose your wager.

The Philippine will sometimes (with two clever and watchful players) go on for several days. It is only ended when one or the other wins and claims her Philippine.

The Italians play this game with leaves, dividing a geranium leaf, &c., between them, and take it, we have been told, quite *au sérieux*.

We venture to suggest a divided branch of holly as a Christmas Philippine in England, and the word to be not "Philippine," but "Yule."



## THE BRAN PIE.

This is a very favourite and laughable pleasure for Christmas. A large deep brown dish, such as poor people in the country send to the bakehouse with dinner in it, is best for the pie. Then a quantity of bran is procured.

Meantime a great number of contributions to the pie have employed busy fingers—needle-cases, pincushions, braces for cricketers, cigar-cases, books, purses, boxes, vases, &c., &c., are brought, and are privately put by mamma and her assistants into the bran pie, and thickly covered over.

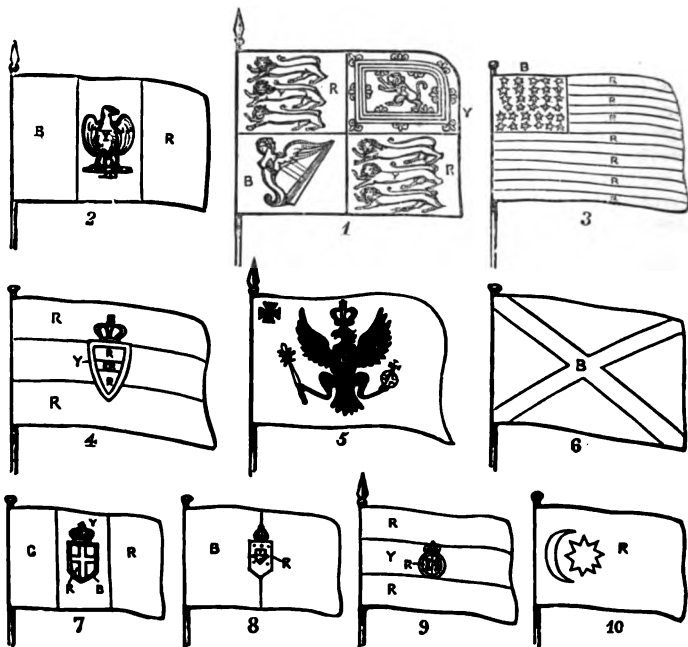
After dinner on Christmas Eve the bran pie is put on the table, with a spoon and plates beside it. Everybody is invited to help herself to it, and each spoon-full brings out whatever it touches. Something round is under Ada's spoon. She disinters a ball—a nice leather ball! Charley has brought up a housewife quite complete, with needles, thimble, scissors, &c. Papa takes out a very nice top; Anthony a book a little beyond his age. Amy gets a most appropriate helping—a little wooden cow. The servants also have gifts from the bran pie. The very inappropriateness of some of the gifts helps to create laughter, and there is a good deal of amusement in the after exchanging, or refusing to exchange them when the pie has disappeared.



### THE CHRISTMAS TREE.

This fairy tree for the little ones is so well known that we need scarcely describe it here. It affords a delightful opportunity for the members of the same home to give presents to each other or to their friends; and we believe, that in the Work department of the HOME BOOK, many kinds of elegant work will be found suggested, exactly suited for the branches of a Christmas tree. A doll well dressed, tiny dolls in the costumes of other lands, paper work, &c., &c., are all adapted to it. Painting flags for it will employ the boys of the house on wet days, and we would suggest that those flags should be *real* ones in form and colour, though not in size. It would

be interesting to have a set of flags made and painted, representing the national banner of every nation in Europe. To assist our young artists in this work we subjoin engravings of the chief flags in the world, beginning with the Royal Standard of England.



1. ENGLAND.

2. FRANCE.

3. AMERICA.

4. AUSTRIA

5. PRUSSIA.

6. RUSSIA.

7. ITALY.

8. PORTUGAL.

9. SPAIN.

10. TURKEY.

R, red. B, blue. Y, yellow. G, green.

One very great ornament of a Christmas tree is a gilt walnut. A good number hanging from the branches has an admirable effect, and they are greatly relished by the little ones to whose lot they may fall.—To gild walnuts: Hammer a rather long tack or nail into the end of the walnut to hold it by, and afterwards to suspend it to the tree. Wash the nut all over with white of egg laid on with a feather. Then roll it in leaf gold till it is well covered. Mind you do not breathe over the leaf gold, or it will fly away from you. When the nut is dry, suspend it to the tree by a red or purple ribbon, the narrowest width you can get.

Birds' nests are also a pretty ornament. Get the cook to give you some *halves of unboiled egg-shells*. Dip them in white of egg (but first you must have some moss ready); make a hollow of moss in your hand, and put the half shell in it. The moss will adhere to the outside very well. Take care that your moss be thick enough to hide the white of the shell. Line it in the inside with feathers, and when dry, put sugar-plum eggs in it. These nests look charming in the foliage of the Christmas tree; tiny hands delightedly grasp them, and, alas! soon succeed in discovering of what they are made.

A very pretty mode of ornamenting the Christmas tree is to hang small garlands or bunches of crystallized leaves, &c., on the branches. The method of covering green twigs with crystals is as follows: Take the lightest sprays of spruce fir, box, &c., that you can get, and suspend them by a network of string tied across the top of a deep bucket, into which they must hang. Then put into the bucket a pound of alum, and pour a gallon of boiling water on it. Leave it all night untouched. Remove the twigs carefully the next morning, and you will find them glittering with minute crystals resembling diamonds.

The garlands must be made up *before* they are crystallized, as the crystals are easily knocked off the leaves. The finer the twigs, the better they will catch the crystals.

Take care that they do not touch the sides of the bucket, and that your string is firmly fastened.

### THIS AND THAT.

This game, also, is a trick. Two players agree what to do. One leaves the room, but before she does so her companion whispers to her, that when she says the word "*that*" the right object will be indicated.

Fanny leaves the room.

ADA. Now, one of you must touch something in the room, and Fanny will tell us what it was.

Mabel touches the sofa-cushion.

ADA. Very well; now call Fanny in.

Fanny enters.

ADA. Mabel has just touched something.

Fanny; was it this (*touching a book*)?

FANNY. No.

ADA. Is it this (*touching her mamma's work*)?

FANNY. No.

ADA. Is it this flower-pot?

FANNY. No.

ADA. Is it this basket?

FANNY. No.

ADA. Is it that cushion?

FANNY. Yes.

### WHY, WHEN, AND WHERE.

ADA. Shall we have a game of "Why, When, and Where" in the twilight, Philip?

PHILIP. If you please. Let me see: one goes out of the room, and the others fix on a word with many meanings, which he is to guess. That is it, is it not?



ADA. Yes; he or she may ask why you like it, when you like it, and where you like it, of each player in turn, and she guesses the word from the answers. The one whose reply betrays the word is obliged to go out as guesser the next time.

WALTER. Let *me* go out first.

ADA. Very well. Now, Philip, that Walter is out of hearing, what word shall we take?

PHILIP. "Box"—I think that has no end of meanings.

ADA. Very well. Charley, call Walter in again.

Walter enters, and asks each person in turn, "Why do you like it?"

ADA. Because it is useful.

CHARLEY. Because it is necessary.

ANNA. Because it is green.

MARY. Because it is sometimes deserved.

FANNY. Because it is pretty.

PHILIP. Because it is of use during August and September.

MABEL. Because I could not travel without it.

Walter pauses to reflect, then begins again by asking Ada, *When* she likes it.

ADA. When I am at work.

CHARLEY. When I wish to take care of anything.

ANNA. At Christmas.

MARY. When it is made of crystal.

FANNY. When I am at the opera.

PHILIP. When it is made of bricks.

MABEL. When I don't suffer from it.

Walter, after reflection, begins again with, *Where* do you like it?

ADA. In my pocket.

CHARLEY. On a carriage.

ANNA. In the garden.

MARY. In the lumber-room.

FANNY. At the play.

PHILIP. On the moors.

MABEL. Not on my ears.

WALTER. I guess! A box. Mabel and Philip told me. *She* did not like it on her ears; *he* likes a shooting-box.

PHILIP. Yes, that is quite right. Now Mabel must go out. We will give her "Bell" to discover.

The best words for this game are—"Bow, beau, bow (with the head);" "Bell, belle," (which has many differences); "Pale, pail;" "Hare, hair;" "I, eye;" "Cousin, cozen;" or any other words to which many different meanings may be found, or which contain many varieties, as "Wine, whine," &c., &c.

### PROVERBS.

Proverbs make a most amusing game. One of the party is sent out of the room while the others choose a proverb. When it is selected, they settle who shall be asked the first question. Then each person appropriates his or her word of the proverb, which she *must* bring into her answer when she is questioned by the absent player. But as no game can be taught without an example, we will tell you how the little players of our other games managed a proverb.

Charley is sent out of the room.



ADA. We must choose a *very* good one, because Charley knows so many proverbs.

MABEL. Shall we have "A place for everything, and everything in its place"?

ANNA. Yes, that will do. It is not so easy as "Fine feathers make fine birds," and those sorts of proverbs; and I don't think Charley knows it. Who begins?

ADA. Mary shall. Her word is *A*.

MABEL. And mine, *place*.

ANNA. And mine, *for*.

FANNY. Mine is *everything*.

EDITH. Mine is *and*.

ANTHONY. Mine is *everything*.

HONORA. And I have *in*. Granville, remember you must say *its*.

EDWARD. And I have to say *place*.

ADA. That will do. Now call in Charley. (*Enter Charley*.) Charley, you are to begin with Mary.

CHARLEY. Mary, do you like Christmas?

MARY. *A* little.

CHARLEY. Mabel, do you care for skating?

MABEL. Yes, on a nice smooth *place*, with you to help me.

CHARLEY. Anna, how long is your hair?

ANNA. What an absurd question *for* you to ask! I don't know.

CHARLEY. Fanny, where is your doll?

FANNY. Oh dear! what shall I say? Dolly is up stairs, and *everything* belongi:g to her is with her.

CHARLEY. Edie, darling, can you fly a kite?

EDITH. I never tried, *and* if I had I don't think I could.

CHARLEY. Anthony, my good boy, have you learned your Latin grammar?

ANTHONY (*a little puzzled*). Let me see. Yes, I have learned my lesson of that and of *everything* else.

CHARLEY. Honora, are you fond of Fido?

HONORA. *In* moderation; I don't care for him as you do.

CHARLEY. Granville, have you any marbles?

GRANVILLE. I have a few. My hag for marbles is in *its* right place.

CHARLEY. I did not say that it was not.

Edward, how many sides has a triangle?

EDWARD. That question I shall not answer, because it is so exceedingly out of *place*.

**CHARLEY.** *Place? place?*—that is the catchword of the proverb. It must be—"A place for everything, and everything in its place."

**ADA.** Yes, that is right. But you know the proverbs so well that you ought not to

This game was played as the last; only, as it was shorter, it did not go quite round. The next proverb would begin at the place in the circle where this one stopped.

For the use of our young readers we add a list of proverbs.

A bird in the hand is worth two in the bush.

A stitch in time saves nine.

All is not gold that glitters.

Union is strength.

Honesty is the best policy.

Safe bind, safe find.

Waste not, want not.

Marry in haste and repent at leisure.

Fine feathers make fine birds.

Little pitchers have large ears.

Listeners hear no good of themselves.

Time and tide wait for no man.

Take care of the minutes, and the hours will take care of themselves.

Every one take care of himself, as the donkey said when he danced among the chickens.

It tastes of the bird, said the old woman as she cooked the rail the crow had sat on.

go out. Now Granville shall go, and we will give him an easy one. (*Granville leaves the room.*) Let it be—"A bird in the hand is worth two in the bush."

Slow and sure.

White hands give no offence.

Tell me your friends, and I will tell you who you are.

Where the sun does not enter, the doctor does.

Short reckonings make long friends.

Time unveils truth.

Black cats have black kittens.

Happy the wooling that's not long a-doing.

Ill weeds grow apace.

Prayer and provender never hinder a journey.

Necessity is the mother of invention.

The darkest hour is just before daylight.

There's a silver lining to every cloud.

Three women and a goose make a market.

The rainbow at night

Is the shepherd's delight;

The rainbow in the morning

Is the shepherd's warning.

## FRAMEWORK STORIES.

**NORA.** Framework Stories! Yes, that's their name; but I do assure you I'm not going to tell you anything too sensible. Only, now, do each of you take a piece of paper and a pencil, and write down what I desire you. Now, then, all of you, not looking at the other's paper, set down

Some hour of the morning.

Now, some number.

Some article of man's dress.

Some kind of man's head-gear.

Some kind of woman's dress.

Some kind of woman's head-gear.

Some implement.

Some agricultural operation.

Some name of a woman.

Some name of a man.

Some kind of cloak.

Some name of a song.

Another time of day.

A noise.

An exclamation of dismay.

A bird of prey.

An exclamation of perplexity.

A measure of height.

A bush.

Some comparison for steepness.

A space of time.  
 Some comparison for littleness.  
 Another noise—a verb, if you please.  
 A greeting.  
 An article of food.  
 A consequence—as if you were playing  
 at Consequences.  
 Some kind of great promotion.  
 What the world said—  
 CHARLES. Well, what is she driving at?  
 NORA. You'll see, if you will answer my  
 questions, all of you, from your papers.  
 It was at what time of day?  
 CHARLES. In the top of the morning.  
 MABEL. Six o'clock.  
 ADA. As the dew fell.  
 WALTER. In owl-light.  
 LUCY. When the dawn on the mountain  
 was misty and grey.  
 PHILIP. At three-quarters past eight.  
 MARY. At sunrise—  
 NORA. That the population of a little  
 village turned out—how many?  
 CHARLES. A hundred and eight.  
 MABEL. A perfect swarm.  
 ADA. One and a half.  
 WALTER. Leashings.  
 LUCY. Myriads.  
 PHILIP. Fifteen-eighths.  
 MARY. Eleven.  
 NORA. Whether they were few or many,  
 the men wore—what?  
 CHARLES. Pea-jackets.  
 MABEL. Embroidered shirts.  
 ADA. Gloves.  
 WALTER. War-paint.  
 LUCY. Trunk hose.  
 PHILIP. Gaiters.  
 MARY. Comforters.  
 NORA. On their heads—  
 CHARLES. Peacock's feathers.  
 MABEL. Wideawakes.  
 ADA. Chimney-pots.  
 WALTER. Grenadier caps.  
 LUCY. White hoods.  
 PHILIP. Beadles' cocked hats.  
 MARY. Steeple crowns.  
 NORA. The women were in—  
 CHARLES. Hoops.  
 MABEL. Bracelets.

ADA. Tariatans.  
 WALTER. Lappets.  
 LUCY. Ruffs.  
 PHILIP. Veils.  
 MARY. White aprons.  
 NORA. Upon their heads—  
 CHARLES. Pork pies.  
 MABEL. Coral pins.  
 ADA. Riding-hats.  
 WALTER. Foolscape.  
 LUCY. Red riding-hoods.  
 PHILIP. Foxes' tails.  
 MARY. Charity girls' caps.  
 NORA. Out, then, they went thus attired,  
 carrying in their hands—  
 CHARLES. Pokers and tongs.  
 MABEL. Watering-pots.  
 ADA. Wheelbarrows.  
 WALTER. Tomahawks.  
 LUCY. Tea-kettles.  
 PHILIP. Ploughs.  
 MARY. Knives and forks.  
 NORA. They were to—  
 CHARLES. Bush-harrow.  
 MABEL. Dig potatoes.  
 ADA. Scare birds.  
 WALTER. Scarify.  
 LUCY. Sow flax.  
 PHILIP. Keep cows.  
 MARY. Bark the trees.  
 NORA. There was among them a poor wo-  
 man named—  
 CHARLES. Nora Creina.  
 MABEL. Semiramis.  
 ADA. Meg Merrilles.  
 WALTER. Red-haired Joan.  
 LUCY. Fair Alice.  
 PHILIP. Mary.  
 MARY. Old Nanny.  
 NORA. She had laid down her child,  
 called—  
 CHARLES. Peter Simple.  
 MABEL. Xerxes.  
 ADA. Van Beest Brown.  
 WALTER. Sandy.  
 LUCY. Sir Tristram.  
 PHILIP. Tom Brown.  
 MARY. A water baby.  
 NORA. To sleep upon her—  
 CHARLES. Galway cloak.

MABEL. Opera cloak.

ADA. Poncho.

WALTER. Wrapsascal.

LUCY. Plaid.

PHILIP. Sentry's cloak.

MARY. Sheep-skin.

NORA. Most likely either the first or last,  
I think. She sang him to sleep to the  
tune of—

CHARLES. The Girl I left behind me.

MABEL. The Shan van Vocht.

ADA. The Sands of Dee.

WALTER. Dulce Domum.

LUCY. Rule, Britannia.

PHILIP. Pop goes the Weasel.

MARY. The Last Rose of Summer.

NORA. Then, poor thing, she went back to  
her work again, whatever it was, un-  
til—

CHARLES. The evening gun.

MABEL. Noon-day.

ADA. Blind man's holiday.

WALTER. Three o'clock.

LUCY. The curfew.

PHILIP. 4.59.

MARY. The witching hour of night.

NORA. Then they heard a noise like—

CHARLES. Five hundred pigs squeaking.

MABEL. An organ.

ADA. The setting of a saw.

WALTER. A spider's whisper.

LUCY. A cuckoo clock.

PHILIP. A railway whistle.

MARY. Like the school turned loose.

NORA. The whole people cried out—

CHARLES. Thunder and turf!

MABEL. Lack-a-daisy!

ADA. Well-a-day!

WALTER. Whose mare's dead now?

LUCY. Alas! alas!

PHILIP. My eye!

MARY. Wolf!

NORA. Ay, and they had need to, for they  
saw the poor baby, Xerxes, or Tom  
Brown, or whatever was his name, in  
the claws of—

CHARLES. A king vulture.

MABEL. A golden eagle.

ADA. A roc.

WALTER. A sparrow hawk.

LUCY. A condor.

PHILIP. A butcher bird.

MARY. A fishing eagle.

NORA. In vain did they shriek out—

CHARLES. I'm fairly bothered!

MABEL. I don't know what to do!

ADA. What a piece of work!

WALTER. Here's a kettle of fish!

LUCY. Catch as catch can!

PHILIP. Lost! lost! lost!

MARY. Cold comfort!

NORA. Ay, true enough: for, screech as  
they would, the bird was gone up to  
his nest on the mountain, as high as—

CHARLES. The monument.

MABEL. The moon.

ADA. Ninety-nine times as high as the  
moon.

WALTER. Up to the topmast.

LUCY. As the great pyramid.

PHILIP. A fly's leap.

MARY. Fifty yards.

NORA. Let the height be what it would,  
the mother scaled it, though only  
hanging on by the—

CHARLES. Blackberry bushes.

MABEL. Nuts.

ADA. Lilacs.

WALTER. Withies.

LUCY. Ivy.

PHILIP. Prickly pear.

MARY. Honeysuckles.

NORA. And it was as steep as—

CHARLES. An angle of eighty degrees.

MABEL. As the wall of a house.

ADA. As Parnassus.

WALTER. As a fir tree.

LUCY. As Helvellyn.

PHILIP. As the chalk-pit.

MARY. As that window is to a fly.

NORA. Yet such was her good heart that  
in—

CHARLES. The twinkling of a bedpost.

MABEL. Ten minutes.

ADA. The turning of an hour-glass.

WALTER. Before you could say Jack  
Robinson.

LUCY. In five winks.

PHILIP. In eleven aces.

MARY. In a lifetime.

NORA. Ah, poor thing! no doubt it seemed so to her, however long it really took; for in the nest she saw her Xerxes, playing among the little birds, as if they were no bigger than—

CHARLES. Midge's wings.

MABEL. Minnows.

ADA. Wrens.

WALTER. Mites' toes.

LUCY. Cock robins.

PHILIP. Tom Thumb.

MARY. Dust.

NORA. When they saw her they all—

CHARLES. Squilled.

MABEL. Screeed.

ADA. Bellowed.

WALTER. Cheered.

LUCY. Hissed.

PHILIP. Gabbled.

MARY. Chattered.

NORA. Nevertheless, in spite of all, she seized her child, and carried it down, when all her friends and relations received her by saying—

CHARLES. How now, old fellow?

MABEL. Good morning to you.

ADA. Your servant, sir.

WALTER. Here she comes again to plague us!

LUCY. Hail! hail! all hail!

PHILIP. I'm afraid you got very wet.

MARY. May your shadow never be less.

NORA. And they at once made her a feast upon—

ADA. Well, it is a game of capabilities! How does the story-teller manage, Nora?

NORA. One must have an idea to begin with—an outline; just a walk, or picnic, or anything that has happened or is going to happen will do. Then the story-teller keeps a list of the kind of things in their order to tell you to set down, so as not to get quite wild or off one's bearings: I mean, if it is a journey one is telling of, set down vehicle, animal to draw it, coachman's dress, distance, all sorts of things in that way, so as to keep the rest, who are to answer, tolerably together with enough understanding of what you mean for their answers to accord in a sort of a way.

MARY. Yes. It is great fun even when there is only *one* person able to manage a story; and it does not need for all the other players to be up to the mark, which is often an advantage when there are youngish children, or people who are frightened if they fancy you want them to do something clever.

CHARLES. Mock turtle.

MABEL. Raspberries and cream.

ADA. Pickled salmon.

WALTER. Elicampagne.

LUCY. Partridge.

PHILIP. Bull's eyes.

MARY. Hashed venison.

NORA. And the consequence was—

CHARLES. Universal degeneracy.

MABEL. The kettle boiled over.

ADA. The train ran off the line.

WALTER. An eruption of Mount Vesuvius.

LUCY. They wrote to the "Times."

PHILIP. No end of a shindy.

MARY. The umbrella was lost.

NORA. The Queen hearing of her, rewarded her with—

CHARLES. A double first.

MABEL. A Humane Society medal.

ADA. A peerage.

WALTER. Made her captain of the eleven.

LUCY. Made her a cardinal.

PHILIP. Gave her a commission.

MARY. Made her the Grand Washerwoman of the Empire.

NORA. And the world said—

CHARLES. Fire away, Flanagan!

MABEL. Merit for once rewarded.

ADA. It was all interest.

WALTER. Poor thing! she is much to be pitied.

LUCY. Flagrant favouritism.

PHILIP. Don't you wish you may get it?

MARY. Let us give her a testimonial.

## RUSSIAN SCANDAL.

"I cannot tell how the truth may be,  
I tell the tale as 't was told to me."

CHARLES, WALTER, PHILIP, MARY, ADA, LUCY, MABEL, NORA.

Charles takes Mary outside the door, and reads to her from a slate—

## HOW TO BREAK A CALAMITY.

A young man at Oxford received a visit from an old family servant. "Well, Robin," he said, "how goes it all at home?" "Why, the old magpie is dead, sir." "Poor mag! what did she die of?" "Of eating horseflesh, sir." "Where could she get horseflesh?" "Your father's horses, sir." "What could have killed my father's horses?" "Only over-work, sir, drawing water." "Water?" "Ay, sir, to quench the fire." "What fire?" "Why, sir, 't was the torches at my lady's funeral set the hall ablaze." "What, my mother dead!" "Ah, sir! she never held up her head after it." "After what?" "After your father's death, sir!" "My father! what, all gone?" "Even so, sir. He was never the same man after the bank failed and he lost all his fortune, so he took and died off; and I thought it would be a satisfaction to you to hear it, so here I am, at your service."

After Mary has *once* heard this story, Charles leaves her, carrying off the slate, and sends Lucy out to her. Mary tells it by memory alone to Lucy, no questions being asked or answered; Mary returns and sends Walter; Lucy tells Walter; then sends him Ada; Walter tells Ada; Ada tells Nora; Nora tells Philip; Philip tells Mabel. Mabel returns and narrates the last version to the entire assembly.

## HOW TO SPOIL A STORY.

(*Whispers of*) "Too true!"

MABEL. A friend of Charles's at Oxford had a visit from an old man, and said, "How are we getting on at home, Robin?" "Very well, sir, only the old donkey is dead. He died when he was ridden to death by your sister running away with the banker, and the house was set on fire, and your father was burned, and your mother took and died off, and I thought it would be a satisfaction to you to hear it, so here I am, at your service."

CHARLES. Well, now, Mabel, is that really just as you heard it from Philip?

MABEL. Indeed, I believe it was, unless it was the mother that was burned and the father took and died off.

PHILIP. Yes, to be sure! And you called the jackass a donkey: all the rest I am certain is only what Nora told me.

NORA. No, no, Philip, I beg your pardon; I said the poor jackass was over-ridden by the banker when he ran away with the lady—the sister I thought it must be—when the house caught fire and the mother was burned, and the father took and died off.

ADA. But indeed, indeed, Nora, I never said so; I am sure I thought the jackass died of drawing water to put out the fire of the torches at the mother's funeral—that is, if she was my lady—when she was burned to



death, when the banker ran away with the money and the father took and died off.

MARY. Oh! oh! I see: Nora could not make sense of my lady being burned to death by the torches at her own funeral, so her vivid romantic imagination suggested Hymen's torch, and created the daughter to be run away with instead of the money.

WALTER. Of course, with Ada to make a mess of it. Now, I said it was a jackdaw that died of eating the horses when they were killed by drawing water to put out the fire when the house was burned by the torches at the funeral of my lady, when the banker ran away and the father took and died off.

LUCY. Please, Walter, I think I said it was an old magpie.

WALTER. Well, it's all the same.

CHARLES. Except when a magpie turns into a donkey! As, by the bye, they often do.

MARY. And I fully believe, Lucy, that I only said the bank failed; not that the banker ran away.

CHARLES. Only, how did you ever make this unlucky fellow a friend of mine?

MARY. Wasn't he?

CHARLES. Fancy that! when torches were used at funerals, and there certainly could not have been any penny post, or he'd not have waited to hear the story till the old rogue came up walking to Oxford. The story is as old as the hills, too old for you to have heard it; and if that is the way you tell every story you hear, nice sort of tales must be running about the world.



MARY. After all, that was a long story, rather hard to repeat rightly in all its details. Let us try again with a very short one.

NORA. I know! I know quite a short one that nobody could get wrong in. I will just set it down, and then call one of you out.

(Nora writes her story down, then summons Ada, and the narration is passed from one to another in succession as before, Charles being last. On his return to the room he begins):

"Ladies and gentlemen,—I am credibly informed on the authority of a lady from Ireland, that the means by which people are there taken up hills, is that the driver says, 'Come, sir, he won't do it, so you must,' turns the passenger out of the fly, puts the horse into the carriage, slams the door, and makes the traveller draw the horse up the hill."

NORA. For shame, Charles! what nonsense have you been making?

CHARLES. What have *you* been making? This is the story that was so short that nobody could possibly make a mistake in it.

NORA. Now, do you really mean to say that you did not do anything to the story, Charles, and that this is just as Lucy told you?

LUCY. No, indeed; I never made all that ridiculous beginning; I did not tell him it was the way people were taken up hills; I only said it once happened to one gentleman up one hill, and that was exactly as Walter told me.

WALTER. Come, Lucy, that is too bad: I said nothing about the traveller drawing the horse.

LUCY. I'm quite sure you said the horse would not go up the hill, till the driver had put him inside the carriage, and said, "Come, sir, he won't do it, so you must," and slammed the door.

WALTER. But 't was your own fancy that the traveller drew the fly.

MABEL. Oh! oh! Walter, I never said a fly at all—I said a car, just as Philip told me.

PHILIP. An inside car, I know I said! Ada told me so; and Mabel hearing something about inside, thought the horse was put inside, but I never said so.

WALTER. And then no wonder the traveller walked up!

MARY. But as it happens, he did not walk up, nor do I believe I ever said so; did I, Ada?

ADA. Well, I am not sure, I know I *thought* he did.

CHARLES. Now, Mary; you tell it just as you think you had it from Nora.

MARY. Well, then; Nora said that a gentleman was going in an inside car up a hill; at the steepest place the horse stopped, and the driver came up, opened the door and slammed it again, saying, "You see, sir, I must do this, or he'll never go up the hill, unless I come round him this way." The horse, you see, thought the traveller was walking, and so pulled willingly.

NORA. Yes, Mary, you have told it just as I wrote it down, except that you put the explanation at the end.

MARY. But I might not explain it when I told Ada, and so all the little ones misunderstood, and made nonsense.

NORA. Till Charles made worse nonsense!

NOTE.—Perhaps our specimens are a little exaggerated, but we assure all Russian Scandalizers that the most amusing way of playing at the game is for each to try for the utmost possible accuracy rather than the wildest deviation. The involuntary mistakes will be quite wonderful enough.

### THE GAME OF PLANTING.

Each player in turn says, "I planted such a person or thing, and it came up such a tree, flower, or vegetable." Latin or scientific names are of course of little or no use in this game: a large acquaintance with "Culpepper's Herbal," and of old English plants and their virtues, will add much to the amusement of the circle, as well as an aptness for punning to make such names available. A few specimens are given to start the game with spirit.

ADA. I planted a *scotch terrier*, and it came up *ratsbane*.

EDITH. I planted a *dunce*, and he came up *beet*.

ANNA. I planted a false *chignon*, and it came up *maidenhair*.

VIOLET. I planted a *village belle*, and she came up *queen of the meadow*.

PHILIP. I planted a *Lord Mayor*, and he came up *London pride*.

MABEL. I planted a *ball-room flirtation*, and there came up *love in idleness*.

FANNY. I planted a *good housekeeper*, and there came up *thrift*.

WALTER. I planted an *old fogie*, and he came up *sloe*.

CHARLES. I planted a *truce*, and there came up a *white flag*.

MARY. I planted *Napoleon's definition of his empire*, and it came up *peas*.

ALL. Oh, Mary!

LOUISA. I planted *Father Ignatius*, and there came up *monkshood*.

ADA. (*Second time round.*) I planted a *schoolmaster*, and he came up *cane*.

EDITH. I planted a *studious young lady*, and she came up *bluebell*.

PHILIP. I planted a *dandy*, and he came up *cockscorn*.

MABEL. I planted a *broken engagement*, and there came up *love lies bleeding*.

ANNA. I planted a *government appointment*, and there came up a *small celery*.

We add a few more examples for the use of our young players.

I PLANTED				AND IT CAME UP			
The sea shore	...	...	...	A beech.			
First love	...	...	...	Bittersweet.			
Jealousy	...	...	...	Yellow flag.			
A white satin shoe	...	...	...	Ladies' slipper.			
Wisdom	...	...	...	Sage.			
Memory	...	...	...	Ashes.			
Agent's commission fees	...	...	...	Cabbage.			
An old mattress	...	...	...	Bedstraw.			
Beauty's abhorrence	...	...	...	The crow's foot.			
Folly	...	...	...	Rue.			
A good conscience	...	...	...	Heartscase.			

## I PLANTED

An unseaworthy ship ...	...	...
The drawing-room mirror ...	...	...
Money's well-head ...	...	...
A white fox ...	...	...
Blackwall ...	...	...
A gentleman in evening dress ...	...	...
A beggar boy ...	...	...
The "Morning Star" ...	...	...
An heiress ...	...	...

## AND IT CAME UP

She sprang a leak.
Venus' looking-glass.
The mint.
Silver fir.
Docks.
Quite spruce.
Ragged robin.
Daisy.
A plum.

## THE GAME OF BURIED CITIES.

Each player repeats a sentence in which the name of a city is contained, so broken up and altered in pronunciation, if possible, as to render it difficult of discovery. The sentences ought to be said *viva voce*, as, if read, the eye is too much helped by the spelling.

Another way of playing is to choose a judge, who gives every player so many counters. She then names a city, and each player must construct a sentence containing it. The judge decides on the best sentence, and all the players give a counter to the successful person. Another city is then named by the judge, and so on till the counters have accumulated in one or two hands, when the player who has the largest number is declared the winner, and becomes judge in her turn. Persons' names, such as poets, warriors, and other celebrities, may be used instead of cities, but it will render the game more difficult, as few historical names can be used without bringing in curious words, which at once rouse the attention and make the disguise too transparent.

A few specimens, however, are given below.

*Names of Persons.*

1. To quicken vegetation and stimulate its sap, phosphates are largely employed.
2. Children pop everything into their mouths.
3. In the island of Serendib dinner consists of rice.
4. Man goeth every day to his labour till the evening.
5. The joint was so lean, derisive shouts greeted its appearance.
6. When her father began to scold, she rose and left the room.
7. If I had a coal-pit, the miners should use the safety lamp.
8. The taste for fox hunting is peculiar to the English.
9. He ordered them to put the grapnels on their places in the ship's side

*Names of Cities.*

1. Let me hope, kind friends, for your approbation.
2. The crew were obliged to rig a jury-mast in the storm.
3. Napoleon is one of the most sombre men of his day.
4. Cæsar was sensitive to any taunt on his baldness.
5. There I saw Anna polishing my boots.

6. The mutiny broke out in the military cantonments.
  7. Titiens has the same mellifluous voice as ever.
  8. The prettiest children are not always the best.
  9. French students seldom remember genders and cases.
  10. They say it was a mad rascal who tried to kill Bismarck.
  11. Is not every rose bud accompanied by a thorn?
  12. Did you see the gooseberry bush I received from the country?
  13. On that grassy slope rabbits abound.
  14. How glad I am oysters are in again!
  15. Zeus did not hate Hera, notwithstanding her bad temper.
  16. While firing the bomb, a young artilleryman shot off his finger.
  17. Is there any rinderpest hereabouts?
  18. I hate public meetings, there is always such a din and clatter.
  19. I always take an ice at the Crystal Palace concerts.
  20. "I shall never fight Tom Sayers again," cried Heenan testily.
  21. The Parliament on every occasion lately has pooh-pooed Reform.
  22. Minerva was a goddess and a strong-minded female.
  23. What shall we play at, Tom? skittles I should prefer.
  24. From eve to morn, from morn to dewy eve.
  25. The same day that saw the outbreak of war saw also the advance of the French.
  26. Generally on Sunday people dine at two o'clock.
  27. Down fell the tinker mangled by the bulldogs.
  28. Mademoiselle Parepa rises every morning at six o'clock.
  29. Where is the "Saturday Review" published?
  30. My Roman books are vellum bound.
  31. They cut off the water, for Duncan would not pay the rate.
  32. December never came so mildly as last year.
  33. That river is very opaque; be careful, or you may be drowned.
  34. Americans think that royalty ought to be abolished.
  35. It was Paul Ivanovich you saw at the fair.
  36. Having fitted the coat, the tailor leans on his elbow, and contemplates his work with satisfaction.
  37. The best juniper and the best alcohol are required for real Schiedam.
- The key to these sentences will be found at the end of the solutions to charades, &c.

### THE REVIEWERS.

Charles, Mary, Walter, Lucy, Ada, and Nora are each provided with half a sheet of note paper. Charles writes the title (real or imaginary) of a book, and folds it down, giving it to Mary, who, without seeing his, writes a second title, folding it out of sight, and passing it on to Walter, who gives it an author, hides this, and gives the paper to Lucy, who contributes a motto. Ada writes one opinion of the press; Nora a second; all that has gone before being unknown to each player. A second paper is started by Mary with the first title, Walter writes the second title, Lucy the author's name, Ada the motto, Nora the first opinion of the press, Charles the second



opinion. A third paper begins with Walter, and is filled up in rotation, ending with Mary; and so on till the last paper begun by Nora has been finished by Ada. Mary, as the least liable to choke with laughter, is chosen reader.

# I. ON BOOTS AND BLACKING;

*Or, The Way to be Happy.*

BY A WHALE HUNTER.

"Where shall the lover rest  
Whom the Fates never  
From his true maiden's breast,  
Parted for ever?"

This is a very improving little book. Nobody can read it without being the better for it. We heartily recommend it to the young.—*Guardian*.

The writer has dipped his pen in gall. Actuated by the bitterest hatred to the human kind, he has depicted our common nature in the darkest colours, and applied the lash with indiscriminate vengeance, unmitigated by a single drop of the milk of human kindness. We wish him a gentler spirit and happier recollections.—*Atlas*.

# II. THE TWIN SISTERS;

*Or, Flat Fish and Flounders.*

BY A YOUNG ASPIRANT.

"Weel may the boatie row  
That earns the children's bread."

The events rival Miss Braddon's, the characters surpass Miss Austen's, the

language is worthy of a Shakespeare, the humour of a Dickens : in short, this little work is compounded of every creature's best.—*Athenæum*.

Never did deeper tragedy draw tears from our eyes.—*Squashtown Courier*.

III.

WHITWORTH OR ARMSTRONG?

*Or, Sweet Innocents.*

BY MRS. BARBAULD.

"If for your pleasure you came here,  
You shall go back for mine."

Only fit to be consigned to the trunkmaker.—*Pall Mall Gazette*.

We are sure that no boudoir will for the future be thought complete without this elegant little manual.—*Daily News*.

IV.

EMILIA ;

*Or, My Old Horse.*

BY A BLIGHTED BEING.

"Catch as catch can."

We fear that no benefit can be derived from the perusal of such a work as this. Its clever hits do not redeem its far graver faults.—*Times*.

We submitted this little work to the best possible judge, our eldest son. When we heard him chuckling over it, "Jolly! jolly!" then we knew that the book had in it pith and marrow.—*Mother's Magazine*.

V.

FROM BELGRAVIA TO BELGRADE;

*Or, Against Wind and Weather.*

BY MISS NORA BURKE.

"Mine be a cot beside the rill."

This production will never set the Thames on fire.—*True Critic*.

No book for a long series of years has produced such a sensation.—*Monthly Chronicle*.

VI.

LITTLE EASE;

*Or, An Inquiry into the Æsthetics of Crinoline.*

BY A GLASGOW PROFESSOR.

"Swim we merrily, the moon shines bright."

A clever diatribe upon the follies of the day, written by one who has not yet learned that there is compensation in all things.—*Saturday Review*.

A sweet poem, which will be enshrined in the memory of all who have once taken it up.—*Ladies' Newspaper*.

## WHAT'S MY THOUGHT LIKE?

ADA. What's my thought like?

PHILIP. Like a Barbary ape.

MARY. Like an eider-down quilt.

NORA. Like a lump of beeswax.

CHARLES. Like cold water.

LUCY. Like Julius Cæsar.

MABEL. Like that carpet.

WALTER. Like nonsense.

ADA. My thought was, "the Moon." Now,

Philip, why is the moon like a Barbary ape?

PHILIP (*not without assistance*). Because it enlivens the rocks of Gibraltar.

ADA. Why is the moon like an eider-down quilt?

MARY. Because it rests on you at night, and is soft and light.

ADA. Now, why is the moon like a lump of beeswax?

NORA. Umph! Because it easily alters its shape.

ADA. And why is the moon like cold water?

CHARLES. Because it is an unstable, chilly thing.

ADA. Why like Julius Cæsar?

LUCY. Because the Ides of March foretold his wane.

ADA. Why is the moon like the carpet?

MABEL. Because it is oftener seen than looked at.

ADA. And why like nonsense?

WALTER. If nonsense is moonshine—why, then the moon must be the very mother of nonsense! And now what's my thought like?

ADA. Cricket.

PHILIP. Cherry brandy.

MARY. The Lady of the Lake.

NORA. The Boys' Magazine.

CHARLES. Catching crabs.

LUCY. A red-hot poker.

MABEL. A primrose.

WALTER. Now, then, why are "the three blind mice" like cricket?

ADA. "See how they run."

WALTER. Why like cherry brandy?

PHILIP. As conducting to glee.

WALTER. Why like the Lady of the Lake?

MARY. Because they only want to get home as fast as they can.

WALTER. Why like the "Boys' Magazine"?

NORA. Because magazines always cut their *tales* short off.

WALTER. And why like catching crabs?

CHARLES. Because there was an ineffectual attempt, and nothing was caught!

WALTER. Now, Lucy, you said the red-hot poker. Why was that like the three blind mice?

LUCY. Because they were red and inflamed.

WALTER. And, Mabel, why like a primrose?

MABEL. Because they are found in hedge banks in the spring. I have a thought. What's my thought like?

WALTER. Twopenny halfpenny.

ADA. French exercises.

PHILIP. Mount Etna.

MARY. Sugar candy.

NORA. John o' Groat's house.

CHARLES. Your own nose.

LUCY. The island in the pond.

MABEL. There, then — it is Old Neptune. Why is he like twopenny halfpenny?

WALTER. Because that sum and a dog are alike proverbs for worthlessness.

MABEL. Why like French exercises?

ADA. Because they are highly discreet and sensible, and so is he.

MABEL. Why like Mount Etna?

PHILIP. Because you all run away when he shakes himself.

MABEL. Sugar candy?

MARY. You consider him as equally sweet.

MABEL. Johnny Groat's house?

NORA. Ah! because he's far above and beyond all others.

MABEL. My own nose?

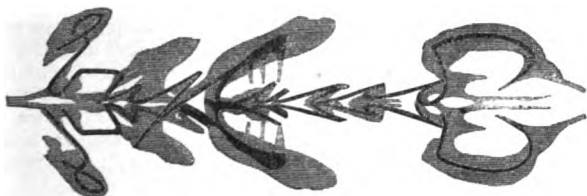
CHARLES. Because it is bluff and pug; and yet you could not well do without it.

MABEL. Our island in the pond?

LUCY. Because he is New found land.

## AN AMUSEMENT.

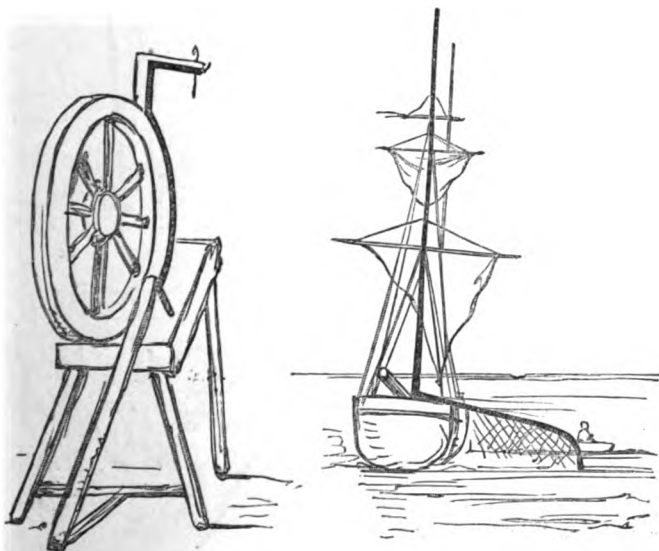
Very pretty designs may be obtained by writing a name on a fold of paper, doubling it, and rubbing it together, while still wet, with a paper knife. First fold your paper, then write rapidly, *with a soft pen*, the name



you choose, on the crease; fold the paper again and rub it very hard. You will thus produce designs, varying for every name, something like the annexed pattern. Word written—*England*.

## WRETCHES' (RETSCH'S) OUTLINES.

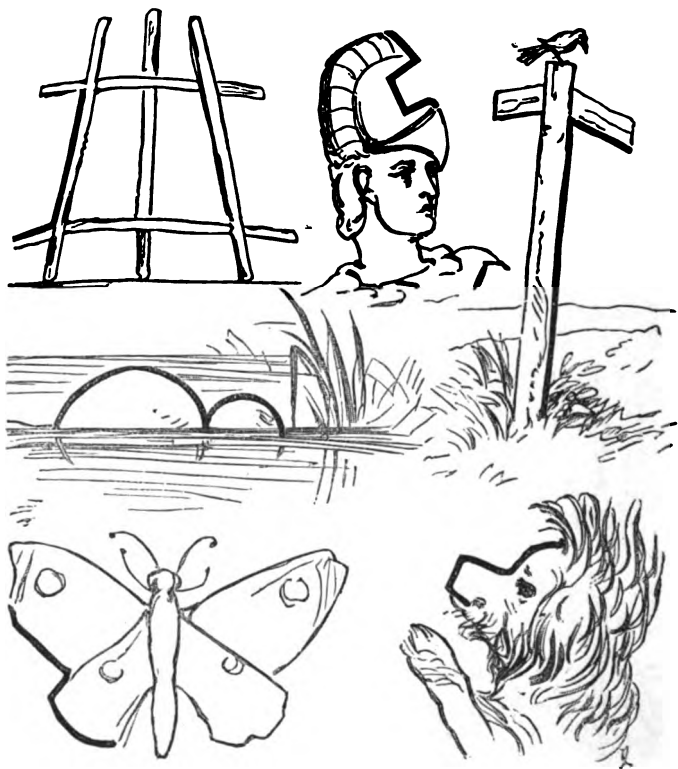
This game is a very interesting and amusing one. The players (of whom there may be any number—the more the better) seat themselves round the table, each provided with a pencil and piece of paper pens, and ink. Each





player draws a line in *ink* upon his piece of paper, which he then passes to his next neighbour, who must make a picture of it, introducing the ink line as part of the outline. The ink line may be as long or as short as the author chooses, only he must not lift his pen while drawing it, or at least he must make the line unbroken. Short lines make the best and funniest pictures. The picture must be drawn in pencil.

There is no attempt at any careful or finished drawing, as the pictures must be finished quickly; else the game is apt to be dull and slow. The greater the variety the better. Care should be taken to prevent the too frequent repetition of one idea. Profiles of faces, for instance may very easily be made of almost any line. This, after one or two examples, should be avoided, just as a piece of encouragement to timid hangers back from the game, who earnestly profess that they "don't draw." The best fun is caused by the most uncouth pictures.



## THE COMICAL CONCERT.

*A Musical Game.*

This is a very laughable game. The "Comical Concert" performers are each provided with a wine glass and a spoon, on which they are to play by striking lightly the edges of the glass at every place marked in the music. The second time it is played, they are to clap hands at the same places; the third, the boys are to whistle; at the fourth repetition they are to laugh; a grand *finale* of spoons! The air is of course played on the piano.

## THE GERMAN CHORUS.



Chorus of voices.



## TABLEAUX VIVANTS.

These very favourite and often beautiful living pictures are a charming family amusement for Christmas or winter evenings. They may be done so as to approach perfection in the way of pictorial effect; or very simply, to charm the home circle.

A double drawing-room, with folding doors, renders their performance very easy, as the framework of the doors makes an excellent frame for the picture. But they may be performed in a hall, by fixing up a wooden picture-frame made for the occasion and covered with gilt paper.

We will suppose, however, that our young readers have a good inner drawing-room given up to them, and that the frame of the folding doors is to be that of the picture. They must then stretch a screen of rose-coloured gauze or fine pink tulle very tightly across the opening, in order to subdue and harmonize the tints of the intended Tableau. Lights are placed so as to throw out the light and shade of the picture; *coloured lights* (which may be easily made or procured) add greatly to its effect. A very charming Tableau is that of a *wreath* of young girls or children, called "LIVING FLOWERS." We will tell you how to arrange it.

A number of boxes, rising in height one above the other, are arranged so as to form a circle; or a number of seats are built to effect the same purpose, reaching from the front of the stage to the ceiling in the background. The gallery of an infant school might be borrowed for the purpose, and the foreground managed with boxes. This circle should be ten feet in diameter. The boxes or seats should be entirely covered with white cloth; the space in the centre of the circle with pink cambric. The "Living Flowers" should be

dressed in white muslin low dresses, and short sleeves, and not very wide or full skirts. The hair should be crowned with flowers, real or artificial. The smallest performer must be placed at the top of the wreath. She must recline in an easy position, resting her head on her hand, the elbow touching the box. The next in size must take her place on the box or seat beneath, on the right side, and rest her arm on the lap of the first child placed, her head leaning on her hand, her face turned to the centre of the circle, the eyes raised to those of the figure above. The remaining figures take similar positions until one-half of the circle is completed. The other side of the circle is arranged in a similar manner, the figures facing inwards. A large wreath of spruce fir, holly, ivy, and trails of paper flowers (the mode of making which is given in this book), must be put inside the young ladies' circle, and fastened up to their seats. Small festoons of flowers are to be placed between, and wreathed around the figures.

The light for this picture must come from the bottom of the stage, and should be *very strong*. This Tableau, when finished, appears at a distance like a beautiful wreath of lovely faces; but the arrangement of the seats requires a carpenter and some outlay. We therefore suggest two or three more tableaux of an easier description.

1ST TABLEAU.—Tell shooting the apple from the head of his son. Scenery must be painted representing an Alpine landscape; a swiss cottage, &c., in the distance; a green cloth must cover the foreground, on which Tell stands, his arrow fixed, in the act of firing; his young son, with bandaged eyes, stands firmly at the given distance. In the background sits Gesler in armour, surrounded by his guards; at the sides stand Swiss peasants young and old, as many as the number of the performers will allow. The dress must of course be Swiss, except that of the Austrian governor and soldiers, which must be armour of the period. The faces must all be turned towards Tell and his son, and should express fear, pity, and anxiety. Gesler should lean on a huge sword, with an air and look of haughty disdain and discontent.

2ND TABLEAU.—Titania and her suite, with Puck. The back drawing-room may be made a perfect greenwood by putting boughs of trees and large potted shrubs in it. A mossy bank may be made of green cloth; flowers of gay hues should be dispersed among the greenery. On the bank, Titania (a child of nine) may lie asleep, folded in a regal mantle of crimson or purple, and crowned with flowers and crystallized sprays. Her ladies, represented by six or seven little girls, are grouped around: they must be smaller than herself, and dressed in different colours, their frocks being made of gauzy and light materials, and looped with flowers; wreaths should be worn on their heads; their wings made of gauze, and their tiny wands of hazel and flowers. On the left side Puck is seen peeping mischievously at them. He holds a heartsease in his hand—the magic flower which he has been ordered to rub on the Queen's eyes. On the other side Helena and Hermia are just visible in the distance, represented by elder girls dressed in Greek costumes; they stand looking angrily at each other, as if quarrelling. The light should be soft to resemble moonlight in this picture.



**3RD TABLEAU.**—On the well-known story of King Alfred in the hut of the swineherd. He is sitting leaning his head on his hand, and looking at the fire. Cakes burnt are on the hearth. An old woman is standing near, her hand raised to strike him. In the distance you perceive the Saxon Thanes approaching. The scenery of this Tableau must also be painted. It is the interior of a rude Anglo-Saxon hut; painted red-hot logs of wood are lying on the hearth: orange peel does very well as a representation of fire. The dress of all the figures must be that of the period. Alfred as a peasant wears a smock frock, and long fair hair on his shoulders. The old woman is in the costume of the times, with petticoat, coif, &c., &c.

History, the works of Sir Walter Scott, and Shakespeare, will supply plenty of subjects from which our young friends may select Tableaux. A curtain must hang before the open folding doors, to be drawn up when the bell rings to announce that the Tableau is ready. The curtain is kept up thirty seconds—the longest time possible, as no movement must be made by the actors in the Tableau. It then falls, to rest them, for the space of two minutes, after which they resume their attitudes, and it is raised again for the same length of time. Generally each Tableau is shown three times.

Coloured lights cast on the scene are often a great source of embellishment. For example: it would add very much to the beauty of the Tableau of "Living Flowers," if a rosy tint could be thrown on them just as the curtain is about to fall.

## ACTED CHARADES.

An acted charade is a little drawing-room drama, by the performance of which the young players represent, first the syllables, then the whole, of a word. The parts may be represented by one connected story or not, as the performers please; or they may be distinct from each other, which is an easier and more common mode of performing them.

*Impromptu* acted charades are very improving, and often quite as amusing as those learned and prepared before representation. But, as young ladies generally prefer written ones, we subjoin two as examples of what the acted charade is, and for their use, if required.

Each performer should copy out her separate part, and learn it quite perfectly. One of the party, however, must act as prompter, and, with the book in her hand, out of sight of the audience, help the memory of those who may hesitate in their recitation.

A back drawing-room with folding doors makes a good theatre. It should be lighted from the sides *brilliantly*, as foot-lights are dangerous. The scenes should be painted, if possible, by some of the party, coarsely but effectively, and will require changing between the parts of the word, when the curtain has dropped.

## THE CHRISTMAS MUMMERS.

### *A Charade.*

#### *Characters and Dresses.*

ST. GEORGE, dressed in armour made of the tin foil in which tea is wrapped; sword, spear, &c., &c.; a red cross on his breast and on his shield.	GRAND MASTER, in armour like that of St. George.
TURKISH KNIGHT, in Turkish costume; turban, scimitar, &c.	MAID MARIAN, in an old costume of looped-up petticoat, &c., with flowers wreathed in her hair.
	Female Attendants, in the same dress.

Knights, Mute Personages, &c., &c.

*The Stage to represent a Street in Rhodes.*

### SCENE I.

*Enter ST. GEORGE and the TURKISH KNIGHT.*

ST. GEORGE. I'm very glad to see you, Bajazet;

'Tis many a day since you and I have met.

TURKISH KNIGHT. I welcome you, most valiant English knight!

My gallant foe in many a hard-won fight.

It cheers me—captive in this rocky isle—

To see again your genial English smile.



ST. GEORGE. What news, fair sir? how have my brethren passed  
The months in Rhodes since I embraced them last?

TURKISH KNIGHT. Alas! most sadly! we are given in prey  
To a fell monster, who doth, day by day,  
Devour remorselessly our flocks and herds.  
To speak our sorrow fully I've no words.  
This very day he means to have a treat  
Of a fair maiden in her bloom, to eat!  
Fine times, indeed, when ladies young and fair  
Only supply a Dragon's bill of FARE!

*[Dragon howls loudly at a distance.]*

ST. GEORGE. That's a cheerful noise!

TURKISH KNIGHT. You hear him howling!

Now for his daily meal he is prowling  
Outside the city walls. The gates are shut,  
And thus some limit to his sway is put.

ST. GEORGE. But what are all our chivalry about,  
Not to put such a monster to the rout?  
Methinks the knights should hold it foul disgrace  
Thus to a savage Dragon to give place.

TURKISH KNIGHT. Alas! so many have the beast assailed,  
And in the contest miserably failed,  
That the Grand Master now forbids the strife,

Which proved so fatal to the Order's life :  
 No one, on pain of death, may seek to slay  
 The monster, who thus holds unbridled sway.  
 'T is said, however, if a maiden rare  
 In grace and worth be given for his fare,  
 He will straight leave our island's fertile shore,  
 And to fair Rhodes he will return no more ;  
 And lovely Marian, with her sunny hair,  
 Offers herself to be the Dragon's FARE.

*Enter MAID MARIAN and Attendants, weeping and lamenting.*

1ST ATTENDANT. Oh, our sweet lady ! would that she were thinner,  
 And not so suited for the monster's dinner !

2ND ATTENDANT. Dear Blanche ! we well may weep, and wail, and sigh,  
 For, oh ! *our* turn is coming by and bye.

MARIAN.       Ye woods and dales,  
                   And happy vales,  
 And little bubbling brook !  
                   For the last time  
                   These eyes of mine  
 On your loved scenes may look !

*ST. GEORGE advances.*

ST. GEORGE. Poor maiden ! do not weep—I come to save you !  
 The cruel Dragon's maw shall never have you !

MARIAN. Alas, fair sir ! no help may you afford ;  
 Never did the Grand Master break his word.

ST. GEORGE. Nor need he : I accept his word of doom,  
 To save a maiden from a living tomb !

MARIAN. What ! die for me ?

ST. GEORGE.                       Yes, 't is a noble fate  
 To die for others. That I'm not too late  
 Gladdens my heart. [*Dragon roars.*] Ay, roar and roar again !  
 That sound shall not long desecrate the plain.       [*Exeunt.*]

## SCENE II.

*Enter Two Attendants.*

1ST ATTENDANT. St. George has slain the Dragon—saved the maid !

2ND ATTENDANT. What a good thing that he was not afraid  
 Of the Grand Master, who us maidens hates,  
 And, to save soldiers, left us to our fates !  
 He'll never dare to punish such a deed—  
 One that has saved us at our utmost need.



*Enter* GRAND MASTER, ST. GEORGE, TURKISH KNIGHT, Knights, MARIAN, Maids, and People.

GRAND MASTER. Sir George of England! for thy valiant act  
We laud thee. But one virtue thou dost lack—  
Obedience. Bold and dauntless warrior! say,  
What is a knight's first duty?

ST. GEORGE. To obey.

GRAND MASTER. Ay, and no deed of arms, however high,  
May set aside that duty! YOU MUST DIE!

ST. GEORGE (*submissively*). I am quite ready. There I lay my sword.  
'Tis right our Master fully keep his word.

[MARIAN *throws herself at the feet of the* GRAND MASTER *and implores him to forgive the* KNIGHT. *The People also clamour, "Pardon! pardon!"*]

TURKISH KNIGHT. Here come I, the Turkish Knight,  
To beg you to consider,  
That many more poor Christians  
Had been the monster's dinner,  
If bold Sir George had waited  
To get your leave, Sir Knight,  
Before he slew the Dragon  
In this day's gallant fight.

MAID MARIAN. Oh, slay not him who did the slayer slay!  
Forgive! forgive! Hear how the people pray  
For pardon of their champion. Speak the word,  
And bid Sir George take up his spotless sword.

GRAND MASTER. Well, since you all his pardon thus implore  
(And certainly the Dragon *was* a bore),  
I will forgive him. George, take up your sword.  
And do not let me hear another word,  
But go home, ladies, and, once there, remain,  
Lest the dead Dragon should revive again.  
Come, brave Sir George. In future years the story  
Of this day's deed will crown your name with glory,  
And cruelty, and wrong, and coward shame  
Shall flee before the flag that bears your name.

MARIAN. Brave knight, how can I thank you for your aid?

PEOPLE. No longer of the Dragon be afraid,  
Maidens and old men! Our heroic shield  
Is he who comes from this unequal field,  
The Island Knight, Sir George, whose mighty name  
Shall live for ever on the roll of Fame.

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FIRST PART OF WORD, "FARE."

---

SECOND PART OF CHARADE.

On the old fable of "Diamonds and Toads."

*Dramatis Personæ.*

ROSABEL, an orphan girl.

The STEPMOTHER of Rosabel.

JULIA MATILDA, the Stepmother's daughter.

TITANIA, as an Old Woman, and as the

Fairy Queen.

PUCK and Fairies.

*Dresses.*

ROSABEL. German peasant girl's costume.

STEBMOTHER. Very gaily dressed in the fashion.

JULIA MATILDA. Absurdly fine, in the extreme of fashion, with flowers, feathers, &c., and a fan in her hand.

FAIRY QUEEN. A short white tarlatan dress, looped up with ivy leaves. A wreath of crystallized spruce fir and holly berries in her hair. (Directions for crystallizing sprays will be found in the HOME BOOK.) Her wings must be made thus:—Form two shapes of strong wire; stretch over them fine gauze wire, tightly. On it you can fix peacock's feathers with gum, or by

sewing them on; or if no feathers are to be had, the wings are very pretty made of transparent gauze.

The female Fairies should all be in different coloured tarlatan dresses—pink, blue, green, &c., and wear wreaths of flowers.

The Queen carries a wand covered with gold paper, &c., &c.

The boy Fays, PUCK, and his brethren, are to be quaintly dressed in motley, with small red caps on their heads. These caps are indispensable.

The Well may be made of a large washing tub put in the centre of the room, surrounded by a piece of green cloth and a quantity of ivy and branches of trees.

SCENE—*A Well.*

*Enter ROSABEL, dressed as a German peasant girl. She sets down her pitcher.*

ROSABEL. I'll rest awhile here; the red setting sun  
Tells bird and bee the daily task is done.  
So is not mine! When my stepdame returns,  
She'll find fresh work for me: no peasant earns  
His brown bread half so hardly as do I,  
Once the spoiled darling of the family.  
Oh, mother! mother! when you died you left  
Your daughter doubly orphaned, being bereft  
At once of you and of her father's love.  
A lonely child, unblest through life I rove.  
My sister is adorned like any queen  
Of May-day or of Whitsuntide, I ween;  
I am so poorly clad, I shun the eye  
And scornful pity of the passers by:  
She lives on cates and dainties; I am fed  
With kraut and morsels of the stalest bread:

[*a pause.*]



*She spends her time in one glad holiday ;  
Scarcely the Sundays do my labours stay.  
—It boots not murmuring. I'll slumber here,  
Where Mother Nature makes me kindly cheer,  
And, hushed to rest by murmuring branches green,  
Find happiness in some benignant dream.*

*[She sleeps.]*

*The FAIRY QUEEN enters, and waves her wand.*

FAIRY QUEEN. Sleep, sleep, still and deep,  
Thy gentle eyelids steep.  
Fairies, come from our home and sing,  
Dancing round in a fairy ring,  
Fairies, come and sing.

FAIRIES. We've found her! we've found her!

*[PUCK tickles ROSABEL's cheek with a feather. She wakes.]*

ROSABEL. What a sweet dream! I saw such tiny creatures,  
With fairy forms and little doll-like features.  
Heigh ho! the sun is set.

*Enter a little OLD WOMAN in a red cloak.*

OLD WOMAN. Maiden, well met!  
A tired and aged pilgrim, gentle daughter,  
Craves at your hands a draught of longed-for water.

*[ROSABEL is going to draw it from the well, when she finds her picher is full.]*

ROSABEL. Oh! what is this? my pitcher to the brim  
Is full of water; there was none within  
When I came hither: sure, some kindly fay  
Has filled it for me, and then flown away.  
But drink, good mother! [*She holds the pitcher for the OLD WOMAN.*

Were it Rhenish wine,

It should as willingly—trust me—be thine.

[*OLD WOMAN drinks, and is suddenly transformed into the FAIRY QUEEN.*

OLD WOMAN as TITANIA. Because thou hast given of thy best,

And thy gentle nature is confest

By a courteous word and kindly smile,

List what I'll give thee to keep the while.

Every time that you speak, my dear,

Whether alone or when men are near,

There shall drop from your lips a white pearl,

Or a precious diamond, like thee, girl.

For the fairies who haunt this forest dell

Thus dower their favourite Rosabel.

[*She kisses ROSABEL, and exit Fairy.*

*Enter STEPMOTHER, crossly.*

STEMOTHER. You tiresome idle creature!

What are you doing, idling here?

ROSABEL. Mother, all my work is done,

And I was—Oh dear! oh dear! [*Drops a pearl from her lips.*

STEMOTHER. What's this? [*Picks up a pearl.*] A very precious pearl!

Where did you steal it, you bad girl?

ROSABEL. I did not steal it.

[*Drops a diamond.*

STEMOTHER. Here's another.

No, it is a diamond! Whence is this?

ROSABEL. I speak them, and shall always, mother;

The fairy gave them with a kiss.

STEMOTHER (*delighted*). O my darling! you sweet little treasure!

Then if you speak much, you'll fill a measure

With the rarest jewels. Come home now, my dear,

But first pick up those that have fallen here;

And, hush! [*Puts her hand on ROSABEL's lips.*] Not another  
word, I implore,

Until we enter our own cottage door.

[*Exeunt.*

*Re-enter STEPMOTHER, pulling in her own DAUGHTER.*

DAUGHTER. But, mamma, I don't choose to sit alone

In this dismal place, on that dirty stone;

'T will spoil my dress. As to drawing water,

I hope you know that's beneath your daughter.

MOTHER (*sarcastically*). Yes! since the well is remarkably deep—  
I strongly advise you to feign a sleep.

DAUGHTER. A sleep! oh, mamma, you're surely insane! }  
 I can't and I won't *alone* here remain. }  
 You may beg and pray—it will all be vain. }  
 MOTHER. You rude, disobedient, undutiful girl!  
 (If I only dared tell her about the pearl!) [aside.  
 You must and shall, maiden—so sit down, I pray,  
 And see what will happen when I go away. [Exit STEP.  
 DAUGHTER (*yawning*). Well, really I think, in the present day  
 Elderly people are very ill bred.  
 Obligated to sit here till I go to bed! . . .  
 If I must, I think I'll just take a snooze;  
 It's the only advice that I won't refuse.  
 [*Daintily covers the stone with her handkerchief, sits down, and sleeps.*]

*Enter Fairies, who pinch her. She wakes. Enter OLD WOMAN.*

OLD WOMAN. The finest lady I have ever seen!  
 What an immense extent of crinoline!  
 Oh, Fraulein fair, will you deign to bestow  
 A drop of cold water on one whose woe  
 At present is, she longs vainly to drink  
 A good draught from this fountain's limpid brink?  
 DAUGHTER (*proudly*). I think, old woman, you are over-bold:  
 By whom, I pray, were you ever told  
 That Julia Matilda Von Gardenrink  
 Was wont to give wayside beggars their drink?  
 Hence! and don't touch me, you dirty old thing,  
 Or at you this fan I will surely fling.

*The OLD WOMAN changes into TITANIA, and says:*

When next you speak, let fall	Such a rude girl,
Toads great and small	Merits no pearl.
At every word!	Your doom is heard! [ <i>Vanishes.</i> ]

*STEPMOTHER rushes in, followed by ROSABEL.*

STEPMOTHER. Well, my own sweet! speak, my beloved child!  
 DAUGHTER. Mother! (*lets fall a toad*). Oh! [*She screams.*]  
 MOTHER. What's this? What's this? I shall go wild!  
 An ugly loathsome toad—alas! the spell  
 Works wrong! Why did I send her to the well?

*TITANIA appears. She speaks, looking at ROSABEL.*

TITANIA. Precious as the purest pearl  
 Were thy kind words, gentle girl.  
 Evil words like toads repel. [Turns to DAUGHTER.  
 Go, each, and bear the fairy spell,  
 Justly wrought at this charmed well.

“SECOND PART OF WORD, “WELL.”

## THIRD PART OF CHARADE. THE WHOLE.

*Characters and Dresses.*

OLD BRIDGET, in a red cloak and hood; stick, &c., &c.	MIKE, her son, an Irish labourer. OLD MIKE.
KATHLEEN, her daughter, a pretty Irish girl.	IRISH PEASANT. &c., &c.

SCENE I.—*An Irish Cabin.*

## KATHLEEN and MIKE.

KATHLEEN. O Mike, my darlint! and is it going away you are, the day?  
What will I do without you? [Crying.]

MIKE. Kathleen *Mavourneen*! it's sorry to lave you I am; but I am going  
to the New World, that ain't worn out yet; and I'll soon send ye home a  
hundred pounds and a silk gown, *Mavourneen*; and you and the ould mother  
shall come out to me.

KATHLEEN. Ah! we'll all break our hearts first! It will kill mother to  
say "Farewell" to her boy.

*Enter BRIDGET.*

BRIDGET. You don't mean to go, Mike, and break your ould mother's  
heart, sure? Why shouldn't we all suffer together? Don't go, my son!  
Stay in your own country, and bide Heaven's time to help us! [Cries.]

MIKE. Don't cry and break my heart, mother! [They all weep.] Let's  
say "Farewell" at once, and get it over.

BRIDGET. Ah, if ye would only heed your grandfather's words!

MIKE. And what were they, mother? Sure, you never told them to me  
yet, and how could I heed them?

BRIDGET. I've tould them a many times to Kathleen.

MIKE. But that ain't to me. What did the ould jintleman say, then?

BRIDGET. He said to your father, "Dig over your praty garden, Mike,  
and you'll find great riches in it."

MIKE. And did father do so?

BRIDGET. Yes, he dug up the ground to plant the praties, but he never  
found anything.

MIKE. Why, no more should I.

BRIDGET. I'd have you try, my son, before we part for ever.

MIKE. Well, I'll wait a week and dig. But I'm thinking, mother, you  
only tell me this to put off the evil day of saying "Farewell."

BRIDGET. Bless you, my boy, for your obedience.

MIKE (*taking a spade*). Well, here I go to work, mother; and I'll dig low  
enough, trust me.

## SCENE II.

## BRIDGET and KATHLEEN.

BRIDGET. That boy's digging day and night; and how happy he is! and



how merrily he sings over his work! He has quite given up the thought of Ameriky.

KATHLEEN. I saw him talking to the old miser Hart just now.

BRIDGET. What could that unhappy ould creature want with my boy?

*Enter MIKE.*

MIKE. Hurray! hurray! good luck, mother!

BRIDGET. What is it now, my boy?

MIKE. Ould grandfather was right—nothing like digging! Just this minit who should come up to me but Mr. Hart, that folks call such a miser! and he says, "I had no idee how that this was such good laud. 'T was all covered with weeds to this day, and looked cold and hungry. It's fine soil," says he: "what will you take for it?" Says I, "It was grandfather's bit o' land—I wouldn't like to sell it." Then he grew quite eager after it; and, mother, would you believe it? he's ended by offering me two hundred pounds for the acre—shall we sell it?

BRIDGET. Surely, yes, boy! Grandfather's words are come true.

KATHLEEN. And we can buy a pig and a cow.

MIKE. But we should have nowhere to put them if we sold the field.

KATHLEEN. That's true, Mike! Why not sow the bit of ground with wheat for yourself, and not sell it at all, at all?

MIKE. And so I will, *Acourneen*. I'll tell him so; and go on digging.

*[Exeunt.]*

## SCENE III.

*Enter MISER HART and PAT.*

[*The MISER must be made to look as poor and wretched as possible. He must walk shufflingly, and crook his fingers while talking.*]

MISER. It's true what you said, Pat. The lad's digging and digging day and night. He wouldn't be doing it for nothing. No, no; there's a treasure hid in that field, you may be sure.

PAT. My grandmother says, it was always well know'd in her day, that Mike's grandfather buried a power of gould there, and bad his son dig for it, 'cause the boy didn't take to work kindly.

MISER. He won't sell the land for two hundred pounds! Well, I must bid higher: no doubt it's worth it.

PAT. And I shall have my share of the treasure, Master Hart, for telling you? shan't I? I'm to dig for it?

MISER. Ay, ay. Who can dig for it but you? I'm too old and feeble. But good bye, Pat; I must try and find Mike again, and persuade him to sell the land.

*Enter MIKE, with a spade over his shoulder, singing the "Shan Van Vogh."*

MISER (*eagerly*). Good day, Mike, good day! I wish I could get you to sell that bit o' land.

MIKE. Kathleen and mother think I'd best not do so.

MISER. Well, perhaps it is valuable—it's very good soil now it's dug up. Look you, Mike, I'll give you five hundred pounds for it.

MIKE (*shaking his head*). No, no. The ould mother won't like it.

MISER. Come, my man, come! don't refuse a thousand. Look! [*Pulls out a leather bag from his pocket.*] Here are a thousand golden sovereigns! Take them, and let me have the land. It's lucky I had them about me!

MIKE (*grinning*). Well, they do look a lot to have in one's pocket!

MISER (*eagerly*). Pray, take them! Let me entreat you to sell me the land for them! I have set my heart on it: don't disappoint an old man, my good lad, but let me draw up a receipt for you to sign, and take them. Come home with me; I am a lawyer, and can settle the whole business quite easily. Don't go home and ask your mother again, as if you were in leading-strings.

MIKE (*reluctantly*). Well, I don't know! It seems a good deal. I'll go with you, Master Hart. [*Exeunt.*]

## SCENE IV.

*BRIDGET and KATHLEEN at work, knitting, &c.*

BRIDGET. Mike is late this evening. I wonder where he is?

KATHLEEN. When I was in the village I saw him going into Lawyer Hart's house. But here he comes.

*Enter MIKE.*

MIKE. There, mother! [*Putting down the bag of gold.*] There's a thou-



sand golden guineas for the old bit o' land, which has only become valuable since I have been digging in it! Old Mr. Hart would buy it, and there's the price. And now we *are* rich; and I hope, my dearest old mother, that for the rest of our lives we three may never have to say that bitter word, "Farewell."

BRIDGET. I always knew grandfather's words would come true, and that there'd be a fortune found in that ground. I've said so many times.

KATHLEEN. Oh, mother! I dare say that's why the old miser has bought it! He thinks to cheat you, Mike, by giving you one thousand pounds for heaps of treasure.

MIKE. Ha! ha! ha! then he has cheated himself, for there's not an inch of soil I have not turned up. But it's lucky for us, and no fault of mine, you see. I told him how I had dug it.

KATHLEEN. Let us be thankful, dear Mike, for this strange whim of a greedy old man, which will keep us together, and put off—for many a year, I hope—the saying of that sad word, "Farewell."

*The curtain falls.*

The spectators guess the word, which is "Farewell."

## ACTED CHARADE FOR BROTHERS AND SISTERS.

SCENE I.—*A Class-room in a Boys' School.*

*Enter JIM, a fag, consequentially.*

JIM. A new boy comes to the school to-day,  
And I'll be booby never again;  
I'll give him the hardest bits to say,  
And all my share of the birch and cane.  
I'll make him serve as the dux's fag,  
To blacken his boots and toast his toast;  
I'm sure I may say without a brag  
I'm quite too good for that menial post.

*Enter JACK, the Dux, very angry.*

JACK. Hullo, you fellow! you've spilt my jam.  
I want my coffee, d'ye hear? Look sharp!  
If you don't fly quick as a telegram  
I'll make you whine like an old Jew's harp.  
[Exit JIM in a tremor.  
So Mammy's darling will soon be here;  
I wish him joy of his welcome rough.  
He can't hurt me or my luck, that's clear;  
I'm always top in that classic stuff. [Exit JACK.



*Enter HARRY, the new boy, and his FATHER.*

**FATHER** (*consolingly*). This is the school-room ; not so bad.

I've often learned in a gloomier place.

You'll have a desk to yourself, my lad ;

Hearken ! they're shouting at prisoner's base.

**HARRY** (*very crossly*). I don't care a fig for prisoner's base ;

I wish I were home, on my pony's back ;

I hate the sight of the master's face,

And I'm sure the boys are a horrid pack.

*Enter MASTER, pompously saluting them.*

**MASTER.**

Welcome, youth, to this classic hall,

Where the great ancients rule supreme ;

You shall be Cæsar's willing thrall,

And follow the plough with the Georgic team,

And drink of the waters of Castalie.

**HARRY** (*aside*). Are they half as pleasant as ginger pop ?

**FATHER.**

My boy, the train will not wait for me ;

The cab is waiting, I must not stop.

[*Affectionate parting. Exit FATHER.*

**MASTER.**

A moment I give to natural tears,

And then you shall join the class, young sir :

To-day our theme is the astral spheres ;

To-morrow, the Greek hexameter.

[*Exeunt omnes.*

15—2

## PART II.

SCENE—*The same.**Enter JIM.*

JIM. Still am I the last of my class;  
 Still I am Jack the bully's prey;  
 While the new boy o'er our heads doth pass,  
 And he's to be top of them all to-day.  
 His mother taught him his *hic, hæc, hoc*:  
 We made no doubt he would prove a fool;  
 Scarcely out of his braided frock,  
 Yet now he's foremost of all the school.

*Enter JACK, flinging a boot.*

JACK. Ugh! you idiot! do you call that clean?  
 It's covered with mud. Quick! scrape it, go!

JIM (*blubbing*). Oh dear! oh dear! I've a long Greek scene  
 To construe, and not one word I know.  
 No pocket money this half I'll get;  
 My father rages, my mother cries.  
 I never dreamed such a pretty pet  
 Would walk o'er the course, and win my prize.

*Enter BOYS and VISITORS to see the ceremony.*

BOY. Do you see that lady in blue silk gown?  
 That's Harry's mother; she taught him Greek.  
 Won't she be proud of his laurel crown?  
 I can spy a tear on his sister's cheek.

HARRY'S MOTHER. Isn't he noble, my darling son!

HARRY'S NURSE. But I wish they had let me brush his hair;  
 He may be as wise as King Solomon,  
 But he looks as rough as a grizzly bear.

[HEAD MASTER rises pompously. BOYS shout and cry, "Harry! Harry!" HARRY comes forward and receives gold medal and laurel crown. HEAD MASTER makes a speech.

HEAD MASTER. Ladies and gentlemen, we are met  
 To honour worthily won success,  
 And I am happy this crown to set  
 On Harry, and wish him happiness.  
 Ever, my young friend, strive as now,  
 And you will conquer in life's career;  
 And nobler laurels shall crown your brow,  
 And louder plaudits shall greet your ear.  
 But spend not strength in a single burst;  
 The work grows harder as moments roll:  
 Many a racer that started first  
 Drops or ever he reach the goal.

[Great applause. Crowd disperses. *Exeunt omnes.*



PART III.

SCENE—*A Drawing-room.*

*Present, HARRY's MOTHER, FATHER, AND SISTER.*

MOTHER. Yes, 'tis weak! I should say God speed!  
For he goes to succour those long-lost men;  
But, alas! at one thought my heart will bleed:  
Like them, he may never return again.

LITTLE SISTER. Mamma, will Harry bring me a whale,  
To swim in my pond, and feed with crumbs?  
Will he see a mermaid, with finny tail,  
Sit on the waters and twirl her thumbs?  
Will he build him a house of frozen snow,  
And drive about dogs in a pony-chaise,  
And dance in the dark with the Esquimaux,  
When the sun lies abed for days and days?

FATHER (*laughing*). Here he comes, with his maps and charts;  
You can ask him all that you want to know.

MOTHER (*sighing*). Little I thought in my heart of hearts  
Those favourite maps would so hateful grow.

*Enter HARRY, cheerily.*

HARRY. Everything's settled; next week I sail  
In the Dasher brig, such a splendid craft!

She'll skim like a bird through the roughest gale,  
 Nor catch one billow from fore to aft.  
 I think I have got some certain scent,  
 And can track like a sleuth-hound straight and good;  
 Mother, I know you'll be content  
 If I work my work as a sailor should.  
 If I find some living of those who sailed  
 Years ago for the frozen seas;  
 If I save one life where so many have failed—  
 Mother, you will not grudge your ease.  
 Give me your blessing ere I start;  
 It shall keep me warm beyond Baffin's Bay,  
 And its heat shall follow across the chart,  
 Through ice-locked harbours and hummocks gray.

[*His parents embrace him fervently.*]

BOTH. Heaven speed you, son! and return you safe  
 To our longing bosoms and home once more;  
 Glorious saviour of some stray waif  
 From Franklin's crew, on the frozen shore!  
 LITTLE SISTER. And pray don't, Harry, forget my whale,  
 And a bit of an iceberg crystal clear,  
 And a wee, wee strip of a mermaid's tail;  
 And I'll think of you every evening, dear.

[*Exeunt omnes.*]

## DOUBLE ACROSTICS.

The double acrostic bears a great resemblance to a rebus, the difference being that the initial and final letters of each solution of the little enigmatical poem are taken; and thus *two* words are discovered, each acrostic having a double answer. But example is the best explanation; therefore we refer our readers to the following specimens from the pen of the accomplished MRS. OGILVY.

### DOUBLE ACROSTIC I.

- |   |   |
|---|---|
| <p>I like to see the mimic mother<br/>         With dainty hugs her darling smother;<br/>         Arrange its hair, contrive its dresses,<br/>         And almost feel, while she caresses,<br/>         A leap of answering love within<br/>         The glittering eyes and waxen skin.</p> | <p>3 I used to keep your books together<br/>         Through patient years of rough school<br/>         weather;<br/>         Paper and cloth usurped my reign,<br/>         And then came crack, and rent, and<br/>         stain.</p> |
| <p>1 He trots, like page, behind our backs,<br/>         And Parliament cries out, "The tax!"</p>   | <p>4 Restless cries the baby waking;<br/>         In her arms the mother taking,<br/>         Soothes him with her crooning strain,<br/>         Rocks him back to sleep again.</p>   |
| <p>2 Through piny woods to Arctic seas<br/>         I flow, but half my time I freeze.</p>  |   |





**A PICTORIAL DOUBLE ACROSTIC**

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(The Solution may be had at the Publishers'.)

II.

- Hard it is to hold me captive,  
Subject to your whims' control;  
Give me food, at least, in plenty,  
Or my death is on your soul.
- 1 When it is our neighbour's  
We take it up in fun;  
When it is ours only,  
We, grumbling, wish 't were done.
- 2 I love cold, and cold loves me;  
From the touch of heat I flee,  
And, sore weeping, cease to be.
- 3 Two legs set on four legs,  
Jogging far and near.
- 4 A little bit of charcoal,  
That ladies value dear.

III.

- Its gauzy clouds in drooping fold  
Conceal the blushing face;  
But all the beauty they withhold  
Is trebly paid in grace.
- 1 Mother Nature's especial abhorrence,  
they say,  
Only found in exhausted receiver.
- 2 The fields where fair Proserpine wandered  
that day  
She was stolen by Dis, the deceiver.
- 3 A tribe whose chief attire was paint;  
Their Queen was heroine more than  
saint.
- 4 When days and weeks upon the seas  
The ship has laboured 'gainst the breeze,  
What joy to hear that thrilling cry  
Echoing from the maintop high!

IV.

- If we are but wedded together  
What wonderful things we can do;  
To shield you from wind and from weather  
Is the every-day task of us two.  
Your bonnet charms every beholder;  
We set dainty shoes on your feet,  
Arrange silken folds on your shoulder,  
And fit you a lady complete.
- 1 I keep my treasure so close and tight  
I never yield it without a fight.

When I am seized by hasty man  
I am certain to go to smash;  
'Tis only the little squirrel can  
Steal my sweetness without a crash.

- 2 Out of me come the trees and flowers,  
Spacious mansions and lofty towers;  
Into me goes the soft spring rain,  
Worn-out body and worked-out brain.
- 3 Her house she builds for her children  
small;  
With bits of herself she lines its wall,  
Warm and cosy, in cleft of rock;  
Little cares she for the billows' shock.
- 4 Round and hard as tortoiseshell,  
High as steeple, hollow as bell;  
Worthy of notice, you will see  
Not a town in Italy without me.
- 5 A poet spied her in church at prayer,  
And fell in love with her then and there;  
Hundreds of verses he wrote upon her;  
And every one said, "What a mighty  
honour!"
- 6 As green as grass, as clear as ice,  
A magic spell 't was said to bear;  
Of absent lover, in a trice,  
You saw the falsehood clouding there.

V.

- "Not yet," she cried, "not yet my grief is  
stayed,  
Nor the sore thirsting for the lost allayed;  
Not yet the courtly pageant can I bear,  
Nor think how last he stood beside me  
there.  
But thou, my daughter, on whose girlish  
face  
The bygone sorrow leaves no marring trace,  
Greet thou my ladies in thy mother's  
name,  
And prove thee worthy of thy father's  
fame."
- 1 Old boots, old books are by this cunning  
made,  
First-rate in cobblers' and in authors'  
trade.
- 2 A side of our nature that never is shown,  
Nor e'en to one nearest and dearest is  
known.



3 City of shambles, stained with hoggish gore,  
What fool baptized thee from his classic lore?

4 The careful housewife, with a fore-thought sage,  
Seeks me for lining to her kitchen gear;  
The lover seeks me, in this prudent age,  
As pocket lining of his wedded fere.

5 How many sounds of sweet assent  
To Southern lips I long had lent!  
Yet now, forgot and passed away,  
With all the bards I set to play.

6 Soft and calm the baby sleeps,  
Happy watch the mother keeps;  
Every breathing in her ear  
Sounds like note of music clear.

7 When the storm its fury wreaks,  
In the cloud my banner flies;  
When its gleam the darkness streaks,  
Hope uplifts her dewy eyes.

8 Patience is my virtue human,  
Not surpassed by man or woman.

## VI.

Long did her sad eyes court a mother's joy,  
At length, past hope, she clasped her promised boy.

1 The mountain quakes, fire flashes from its peaks.

2 Dead falls the liar while the arraigner speaks.

3 Weeping and wailing did thy streets affright.

4 She in the Temple waited day and night.

5 How oft poor Judah saw the Syrian foe  
Her fields strip naked, and her towns lay low!

## VII.

He listened to the Preacher  
When it was safe to hear;  
He clung to Paul the aged,  
When danger was not near.

But when in Roman forum  
Out rang that tumult dread,

"The Christians to the lions!"  
Back to his own he fled.

1 In one day the loss of children and the father of them all,  
What to woman worse can happen? Can there heavier woe befall?

2 "I beheld the sun and moon and eleven stars," said he,  
"From the firmament bow down, and do homage unto me."

3 All first-borns unto GOD were due,  
But firstling children bought they back.

4 It spreads along the ocean blue,  
Its cities reared by townsmen black.

5 Lifeless, past all further pain,  
So much loved, so much regretted,  
Tears the women's faces wetted:  
Peter called—she rose again!

## VIII.

The robe half woven, and the veil half wrought,  
The wreath scarce budding, and the rite unsaid,  
Her lover called her; when his side she sought,  
The King of Terrors met her in his stead.

1 You promise peace, but oft bestow disquiet.

2 Wild justice named, but justice run to riot.

3 A term oft argued, never yet defined.

4 The spendthrift's Nemesis that lags behind.

5 A queenly name, a saintly name, a homely name also,  
In every land, in every tongue, in every book 't will show.

## IX.

Wise man, wise man, what do you up so high?

Sweep you the antique cobwebs from the sky?

Replied the sage, "I spread my silken sails  
To weigh out snow-flakes and to measure  
gales."

- 1 The gift of me is good for men of law.
- 2 The flying isle a crazy dean once saw.
- 3 Slaughter's provision-house, well stored  
with pain.
- 4 If his spear touch, all your craft is vain.
- 5 The worst sensation novel writ by pen.
- 6 Waters where cormorants help fisher-  
men.
- 7 Happy his life who trees and song-bird-  
cherished.
- 8 Glorious his death who for his country  
perished.

X.

- 1 When you set me on your head,
- 2 When my studio you would see,
- 3 When my book of birds is read,
- 4 And my leaves infused for tea,
- 5 When by me you win the fight,
- 6 When I span my web too well;  
When—— but here's a sorry plight—  
(I must present you with an ell.)  
When all these things are said and done,  
I still shall glitter in the sun.  
A place that lets the blue sky through,  
A place that ne'er was meant for you,  
Unless you let all share it too.

XI.

- 1 What is best on earth to see,  
Firm through wealth and penury,  
Rarer though each day it be?
- 2 What is red with kinsmen's blood,  
Which should flow a crystal flood,  
Or at worst roll only mud?

- 3 What is changeful as men's thought,  
And, like men, for gold is bought,  
Yet when purchased good for nought?

- 4 What is small, and mean, and wet,  
And so oft the schoolboys' pet,  
Till their tidy mothers fret?

- 5 What is that you ask from Heaven  
When you pray to be forgiven,  
And from sin and sorrow shriven?

From these you will guess without pother  
If your wits have been properly guided,  
Two things that belong to each other,  
And seldom go well when divided.

XII.

The cannon thundered in the doomed  
town,  
The princess wept beneath her alien  
crown.

- 1 In vain might flowery goddess of the  
spring
- 2 O'er that true heart her fragrant censer  
swing.
- 3 In vain soft luxury her limbs enroll.
- 4 Blackness of darkness brooded o'er her  
soul.
- 5 To the old legend of her land she fled
- 6 For some far twinkle to illumine her dread.
- 7 But still she saw her country stand  
alone,
- 8 The plunderer monarchs grasping from  
their throne;
- 9 And though to help her people she  
would ride  
Like Coventry's famed Countess—she  
must chide  
Her tears back to their fount, and with  
the strangers hide.

## RIDDLES, CHARADES, &c.

These playful trials of wit date from the earliest ages, and were once held in greater estimation than the modern use of them would lead us to believe. We all know of what great national importance Samson's riddle of the lion and the honey became. Josephus tells us that Hiram, King of Tyre, sent "enigmatical sayings to King Solomon, desiring that he would solve

them," which Solomon did easily. As tests of ability, and as, doubtless, containing much of the wisdom of those ages, these enigmas or riddles may perhaps be ranked before our own, which are mere *jeux d'esprit*.

The myth of the Sphinx is well known. Juno, in anger against Thebes, placed in its vicinity a monster—a lion with a woman's face—decreeing that it should propose enigmas to the passers by, and devour all who were unable to answer its riddles. The consequence was, that the country round Thebes was desolated, and no travellers approached the city. At length, however, the unhappy Œdipus became the deliverer of the country from this creature. The Sphinx demanded of him, "What animal it was that walked on four legs in the morning, two at noon, and three in the evening." Œdipus replied "MAN! who crawls in infancy, walks erect in manhood, and supports his steps in age with a stick." The Sphinx, defeated, dashed her head against a rock and perished.

We do not think that her powers of puzzling were very great; but every riddle appears easy when the solution is known. The questions to which we have hitherto alluded are called Enigmas.

A Charade is of more modern invention, and, we believe, derived its name from its inventor. It was not known in France as late as 1771. It uses for its subject the syllables of a word, which must be distinct words in themselves, as "Fare-well," "Camp-bell," &c., &c.; it affords great scope for a display of wit and talent.

A Rebus is formed only of initials, and somewhat resembles the modern invention of Double Acrostics. A question is asked on each initial of the word intended to be named.

An Anagram is the transposition of the letters of a name, so as to form a new word. The letters must not be used twice over.

Enigmas, Charades, &c., are of some use as an exercise for the intellectual faculties. They encourage readiness of thought and a facility for considering a problem in many ways and in every possible light. They afford much amusement at times; but we warn our young readers never to inflict more than a very few at a time, upon their playfellows and acquaintance. Recourse should never be had to the key to them till every possible effort has been made to discover the solution without its aid. They are necessarily, like proverbs, the inheritance of the young from former generations; but we think we offer those least generally known here, with the addition of very many entirely new ones, especially among the Charades and Enigmas; the Charades being nearly all original.

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## CHARADES.

### I.

The drums are loudly beating, and the troops are in array,  
The Emp'ror and his aides-de-camp are on the ground to-day;  
My first is waving sword in hand, and many a Frenchman's eye  
Marks cavalry, artillery, and infantry march by.

The scene is changed ;—the wind is strong, the thunders loudly roar,  
Vast masses of white foam are dashed on many a rugged shore ;  
My second, lashed to fury, swells high with the tempest's ire,  
While the dark wastes are just revealed by the blue lightning's fire.

And yet again the scene is changed ;—we pass to earlier years ;  
My whole a gloomy prison-house of former time appears :  
A thing of old, not known to this, but to an elder age,  
Told of but in the novelist's or the historian's page.

II.

Along the lines a shout is heard. "My first ! my first !" they cry ;  
And onward rides my royal first, the mark of every eye.  
The bands blare forth a welcome sound, from rank through rank to rear,  
From lancer and dragoon rings out the loudly thundering cheer.

Where the drooping willow's leaves o'erhang the sluggish river,  
Where the summer grass and flowers in faintest south winds quiver,  
Watching the ripples as they pass, my second, half asleep,  
Snarcs with his line and baited steel the creatures of the deep.

But, lo ! a gleam upon the stream. My brilliant whole is there.  
My human second scarcely can with him in skill compare ;  
Nature's own glories flash and glance, none lovelier could be seen,  
In robes effulgent of my first—of princess, empress, queen.

III.

The bridesmaids are waiting, and what must they do ?  
There's Constance, and Alice, and Adelaide too ;  
And that old prude Gorgon, who sits on the right,  
At their charms curls her lip with envy and spite ;  
As badly all fidget and chafe as the worst,  
Lingering impatient till cometh my first.

But my first sits calm at the dressing-glass, where  
She so oft may be found, arranging her hair ;  
Her maidens are twining a wreath in her curls,  
They deck her with lace and white roses and pearls.  
A few minutes more, and my second, they say,  
Will loose the white steeds—they'll be dashing away.

The mystic gold circle is on, and the word  
Which joins two in one through the choir has been heard ;  
The priest's blessing hands have reposed on the brow  
Of my first ; and my whole have uttered their vow.  
The marriage is over ; but is there a soul  
Who thinketh not, "Fortunate fellow—my whole !" ?

IV.

1. The dress for the dance has been ordered to-night  
To gleam in the theatre gay ;

The queen of the ballet nymphs, who but herself  
 Should be the pre-eminent fay?  
 The bright little milliner's bright little eyes  
 With energy sparkle, I ween,  
 As she speeds, with her delicate little my first,  
 The click of the sewing machine.

2. Along the solid frozen stream  
 The daring skater hies;  
 Swifter and swifter, onward still,  
 In wild career he flies;  
 Yet, ah! the ice grows weaker now,  
 There's risk of being drowned;  
 His foot has slipped; he's safe, although  
 My second he has found.
3. Through the dark streets at midnight hour,  
 Intent on mischief foul,  
 Watching their all-unconscious prey,  
 Two grim garotters prowl.  
 But list! behind them is my whole,  
 Their victim keeps his gold;  
 His throat is saved from their attack,  
 And they, methinks, are sold.

## v.

Eliza is looking untidy to-day,  
 As she may very often be seen;  
 For my whole round her head, though they useful may be,  
 Are not ornamental, I ween.  
 Let her twist up my first in my second at night;  
 She should take them all out in the morn;  
 For my whole, though they be pretty well in their way,  
 Ought never at noon to be worn.

## vi.

A knight rode on in the dusty way,  
 As he came from the Holy Land;  
 Five years before he had passed that road  
 With my first, a trusty band.  
 How many were missing! and well he knew  
 How they fought and fell to their master true.  
 He summoned my second to his side,  
 And gave him an ancient seal,  
 Bidding him bear to his lonely wife  
 This mark of her husband's weal.  
 And with it he sent a message kind,  
 That he should not tarry long behind.

Ah! faster than ever ill tidings fly  
He bore to his lady's ear,  
As she sat alone with my fav'rite whole,  
The news she longed to hear.  
How happy her heart was, oh! who can tell,  
But they who have loved as long and as well?

## VII.

My first is what you're doing now;  
My second is procured from stone;  
Before my whole you often stand,  
But mostly when you are alone.

## VIII.

My first you will never find out; my second is founded in truth: I  
trust that you will never be my whole.

## IX.

My first is the lightest of things, without doubt;  
My second we would not be always without;  
My whole you will find as a great prize is reckon'd  
By people who are a long way from my second.

## X.

Oh! dost thou see yon maiden fair,  
With glowing cheeks and golden hair?  
Then know, my first is with her there.  
At it her blue eyes shine so bright  
With an admiring, happy light,  
For 'tis a love-gift from her knight.  
But while she gazes lovingly  
My second falls. "Alas!" cries she,  
"To think this should so fragile be!"  
She stoops, and gently from the ground  
My second takes; then, looking round,  
She listens for the faintest sound,  
Lest any should be near to see;  
Then in her bosom carefully  
She puts my whole. What may it be?  
For while abstractedly she stands  
(My first still holding in her hands),  
E'en as she gazes it expands.

## XI.

My first is French, my second English, and my whole is Latin.

## XII.

Without my first my second could never have existed, and my whole is  
coeval with creation.

## XIII.

My first makes all nature appear with one face ;  
My second has music, and beauty, and grace ;  
My whole, when the winter hangs chill o'er the earth,  
Is the source of much pleasure, mischief, and mirth.

## XIV.

We insert this poem to show how much may be made of the charade in  
skilful hands :

The canvas rattled on the mast,  
As rose the swelling sail,  
And gallantly the vessel passed  
Before the cheering gale ;  
And on my first Sir Florice stood,  
As the far shore faded now,  
And looked upon the lengthening flood  
With a pale and pensive brow :  
“ When I shall bear thy silken glove  
Where the proudest Moslem fle  
My lady love, my lady love,  
Oh, waste one thought on me ! ”

Sir Florice lay in a dungeon cell,  
With none to soothe or save,  
And high above his chamber fell  
The echo of the wave ;  
But still he struck my second there  
And bade its tones renew  
Those hours when every hue was fair,  
And every hope was true.  
“ If still your angel footsteps move,  
Where mine may never be,  
My lady love, my lady love,  
Ah, dream one dream of me ! ”

Not long the Christian captive pined !  
My whole was round his neck !  
A sadder necklace ne'er was twined,  
So white a skin to deck.  
Queen Folly ne'er was yet content  
With gems or golden store,  
But he who wears this ornament  
Will rarely sigh for more.

"My spirit to the heaven above,  
My body to the sea,  
My heart to thee, my lady love,  
Oh! weep one tear for me!"

XV.

I am the first, and one of seven;  
I live betwixt the seas and heaven.  
Look not below, for I am not there,  
My home is in the ambient air.  
Come to my second: behold how fair  
I am, how bright and how debonair;  
A pleasant vision and a beauty,  
A thing of life and joy and duty.  
My youth is changed—I live alone;  
My views are crossed—my hopes are gone!  
My whole is sorrow, grief, and woe,  
My singing now is all heigh ho!

XVI.

My first the fair Ophelia gave the Queen;  
My next a steed, as ancient legends make it.  
If fair Ophelia's gift my whole had been,  
Pray would her Majesty do right to take it?

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ENIGMAS.

I. I partake alike in your joy and your sorrow, and your home would not be home without me.

II. O'er all the world my empire I extend,  
The joy of childhood and the mourner's friend;  
I flatter all mankind and oft deceive,  
Yet when again I promise, men believe;  
Without me, earth were sunk in endless gloom:  
I point the way to realms beyond the tomb.

III. I owe my birth to a German, and I am now one of the greatest powers in the world; still I am content to be useful in the house. Sailors used to detest me, but at present I believe they value me as much as landsmen do.

IV. THE NAMES OF THE TREES.

Say, which is handsomest of all the trees  
That ever braved the cruel wintry breeze;  
Which ever lovely to our eyes appears,  
And knows no change through all the rolling years?  
When this tree's name you shall have fairly guessed,



Say, which appears to you the ugliest ?  
 And this, I think, you 'll easily explain,  
 Because the answer is so very plain.  
 When these are known, I pray you name the one  
 Of all the autumn trees most meddlesome ;  
 Which sets all classes blindly by the ears,  
 However friendly to them it appears.  
 Next tell me which defies old ocean's flood,  
 And by whose might its leaves are best withstood ?  
 Inform me next which tree will bid you rove ?  
 Which live ? and which all modern maidens love ?

## V.

A collection of enigmas would be scarcely complete without the celebrated one by Miss Ferrier, which is undoubtedly the best ever written.

'T was whispered in heaven, 't was muttered in hell,  
 And echo caught faintly the sound as it fell ;  
 On the confines of earth 't was permitted to rest,  
 And the depths of the ocean its presence confest ;  
 'T will be found in the sphere when 't is riven asunder,  
 Be seen in the lightning, and heard in the thunder ;  
 'T was allotted to man with his earliest breath,  
 Attends at his birth, and awaits him at death ;  
 Presides o'er his happiness, honours, and health ;  
 Is the prop of his house and the end of his wealth.  
 In the heaps of the miser 't is hoarded with care,  
 But is sure to be lost by his prodigal heir.  
 It begins every hope, every wish it must bound ;  
 With the husbandman toils ; with the monarch is crowned.  
 Without it the soldier, the sailor may roam,  
 But woe to the wretch who expels it from home !  
 In the whispers of conscience its voice will be found,  
 Nor e'en in the whirlwind of passion be drowned.  
 'T will not soften the heart ; though deaf be the ear,  
 'T will make it acutely and instantly hear ;  
 But in shade let it rest like a delicate flower ;  
 Oh ! breathe on it softly,—it dies in an hour.

## REBUSES.

- I. The goddess who presides o'er fields of corn ;  
 The greatest blessing that can life adorn ;  
 The most industrious of the insect kind ;  
 The pledge of marriage, for the hand designed ;  
 The place where travellers at night reside ;  
 The sailor's dread when on the ocean wide ;

The happiest time that mortals e'er can know;  
From whence the springs of fairest beauty flow.  
Join these initials right, and you will find  
The noblest virtue of the Christian mind.

- II. Strange! that the fairest of creation, should make a word of lamentation.
- III. Name a word that holds in itself the extremes of hardness and lightness.
- IV. Take me entire—a shapeless stupid thing;  
Cut off my head, and, presto! I'm a king.

### ANAGRAMS.

- |                                     |                                   |
|-------------------------------------|-----------------------------------|
| 1. Spare him not.                   | 11. Yes, Milton.                  |
| 2. Moon starers.                    | 12. A crown which was the pride   |
| 3. Golden land.                     | of ancient Rome: whichever way it |
| 4. To love ruin.                    | is read, it is the same.          |
| 5. Best in prayer.                  | 13. Oh, stranger! I pine.         |
| 6. Great helps.                     | 14. Ten tea-pots.                 |
| 7. Oh, use malt.                    | 15. Nay, I repent it.             |
| 8. Rare mad frolic.                 | 16. Mock joy—a tin pan—cost!      |
| 9. A just master (an old anagram    | 17. Sly ware.                     |
| of 1748).                           | 18. Fat bakers.                   |
| 10. Pray find a word, if you are    | 19. Nine thumps.                  |
| able, that will produce a chair and | 20. 'Tis no demon's art.          |
| table.                              | 21. In magic tale.                |
22. Queen Mary II. made the following anagram on a man for whom she had a great contempt. "Lie, strange Roger!" What was his name?

### CHRONOGRAMS.

A chronogram is a sentence comprising a date in Roman numerals. A curious one is attached to the age of Elizabeth. The date of the Queen's death was 1603, in Roman numerals MDCIII. The chronogram, written at the time, read thus: "My Day is Closed In Immortality."

MLXVI., 1066, William Con. invades Britain. Mighty Leader eXpect Victory Invading England.

Raphael died 1520, MDXX. My Deeds eXceed eXpectation.

Our young readers, by putting a date into Roman numerals, may easily concoct a suitable sentence for any remarkable event they please to select.

### SQUARING WORDS.

Squaring words is a very amusing occupation for a winter evening. We give an example:

Y	E	S
E	M	U
S	U	N

You will see by this example that these words read *along* and up and down the same. It is believed that the word *Victoria* will not square with any others. Try to square the words indicated by the initials of these rebuses.

## 1. SQUARE.

- |                                    |   |
|------------------------------------|---|
| 1. A short poem.                   | 3. And an important member of the human body. |
| 2. The former governor of Algiers. |   |

## 2. SQUARE.

- |  |                        |
|--|------------------------|
| 1. Something useful in muddy counties. | 3. The boast of China. |
| 2. The plural of "Is."                 |                        |

## 3. SQUARE.

- |  |  |
|--|--|
| 1. That which Pope, Swift, Hood, and Barham possessed. | 2. That which Swift often experienced.   |
|  | 3. The union of one figure with nothing. |

## 4. SQUARE.

- |  |   |
|--|---|
| 1. The chief beauty of St. Paul's Cathedral. | 3. A spot where cowslips love to bloom. |
| 2. The reverse of "shut."                    | 4. The motives of cunning actions.      |

## 5. SQUARE.

- |                 |                                      |
|-----------------|--------------------------------------|
| 1. A            | 3. A changeful gem.                  |
| 2. Your father. | 4. That which we hope you will grow. |

## 6. SQUARE.

- |                         |                    |
|-------------------------|--------------------|
| 1. The garden of bliss. | 3. Eternity.       |
| 2. A gentle bird.       | 4. A cruel tyrant. |

## 7. SQUARE.

- |                                 |  |
|---------------------------------|--|
| 1. The smallest thing you know. | 3. The commencement of old tales.        |
| 2. A British river.             | 4. That which all young girls should be. |

## 8. SQUARE.

- |   |   |
|---|---|
| 1. The repose of Nature.                  | 4. The place he searched for blackberries.  |
| 2. The truant.                            | 5. The places where he sought birds' nests. |
| 3. That which tempted him to play truant. |   |

## 9. SQUARE.

- |  |   |
|--|---|
| 1. That which never rests day or night.      | 3. That in which martyrs have rejoiced. |
| 2. An adjective applicable to most children. | 4. Necessary payments.                  |
|  | 5. A place of meeting by appointment.   |

## 10. SQUARE.

- |                                |  |
|--------------------------------|--|
| 1. Epsom, Ascot, or Newmarket. | 4. Elizabeth abbreviated.                    |
| 2. The quality of an acrobat.  | 5. A Hebrew word equivalent to <i>Ames</i> . |
| 3. A pleasant adjective.       |  |

We believe we have now given specimens of most of the enigmatical trials of wit.

The Anagrams are extremely old, but they will probably be new to the young readers of the HOME BOOK.

CONUNDRUMS.

1. Where was Humboldt going when he was thirty-nine years old?
2. Which is the most ancient of the trees?
3. Which are the most seasonable clothes?
4. Why are lawyers and doctors safe people by whom to take example?
5. What injury did the Lavinia of Thomson's "Seasons" do to young Palemon?
6. Why are wooden ships (as compared with ironclads) of the female sex?
7. At what time of life may a man be said to belong to the vegetable kingdom?
8. Which are the lightest men—Scotchmen, Irishmen, or Englishmen?
9. Which are the two hottest letters of the alphabet?
10. Why is cutting off an elephant's head widely different from cutting off any other head?
11. Who is the man who carries everything before him?
12. Which are the two kings that reign in America?
13. When may a man's pocket be empty and yet have something in it?
14. Why is a clock the most modest piece of furniture?
15. Why is U the gayest letter in the alphabet?
16. Why are wheat and potatoes like Chinese idols?
17. Which is the merriest sauce?
18. Why is a cat going up three pairs of stairs like a high hill?
19. Why is a lead pencil like a perverse child?
20. Why is a horse like the letter O?
21. Why are penmakers inciters to wrongdoing?
22. Why should we never sleep in a railway carriage?
23. When is a boat like a heap of snow?
24. What 'bus has found room for the greatest number of people?
25. Who is the first little boy mentioned by a slang word in the History of England?
26. Why is Macassar oil like a chief of the Fenians?
27. Why is a nabob like a beggar?
28. What sort of day would be good for running for a cup?
29. What is the difference between a spendthrift and a feather bed?
30. Is there any bird that can sing the "Lays of Ancient Rome"?
31. What have you to expect at an hotel?
32. What comes after cheese?
33. When does a man sit down to a melancholy dessert?
34. What notes compose the most favourite tunes, and how many tunes do they compose?
35. When may a man be said to breakfast before he gets up?
36. Why is an hotel waiter like a race horse?
37. When is the soup likely to run out of the saucepan?
38. What is that word of five letters, of which, when you take away two, only one remains?

39. When are volunteers not volunteers?
40. Why is the letter B like a fire?
41. Why is the letter R a profitable letter?
42. What word may be pronounced quicker by adding a syllable to it?
43. What is the difference between a dairymaid and a swallow?
44. Which animal has the most property to carry with him when he travels, and which two have the least?
45. How many sticks go to the building of a crow's nest?
46. Why was Robinson Crusoe not alone on his desert island?
47. Why are there no eggs in St. Domingo?
48. What is invisible blue?
49. Which is the most wonderful animal in the farm-yard?
50. Which peer wears the largest hat?
51. When does beer become eatable?
52. Why is a patent safety Hansom cab a dangerous carriage to drive in?
53. Why are bakers very self-denying people?
54. Why is whispering in company like a forged bank-note?
55. Which constellation resembles an empty fire-place?
56. What is the last remedy for a smoky chimney?
57. What relation is that child to its father who is not its father's own son?
58. When does a cow become real estate?
59. Why are dissenters like spiders?
60. Why did Marcus Curtius leap into the gulf in Rome?
61. Why is a soldier like a vine?
62. Which is heavier, a half or a full moon?
63. When should you avoid the edge of the river?
64. Why must a fisherman be very wealthy?
65. If the fender and fire-irons cost three pounds, what will a ton of coals come to?
66. Why are the fourteenth and fifteenth letters of the alphabet of more importance than the others?
67. What is the way to make your coat last?
68. Why is an alligator the most deceitful of animals?
69. Why is it impossible that there should be a best horse on a race-course?
70. Why are fowls the most economical creatures that farmers keep?
71. When may a ship be said to be in love?
72. What relation is the door-mat to the scraper?
73. What vegetable most resembles little Fanny's tongue?
74. Why is a gooseberry jam like counterfeit money?
75. What is that which has never been felt, seen, nor heard—never existed, and still has a name?
76. Why is a congrue-box without matches superior to all other boxes?
77. Why is a postman in danger of losing his way?
78. What is that which comes with a coach, goes with a coach, is of no use to the coach, and yet the coach can't go without it?

79. What three letters give the name of a famous Roman general?
80. Why would it affront an owl to mistake him for a pheasant?
81. If your uncle's sister is not your aunt, what relation does she bear to you?
82. Of what profession is every child?
83. Why is the letter *i* in Cicero like Arabia?
84. Why is troy weight like an unconscientious person?
85. Why is chloroform like Mendelssohn?
86. When is a sailor not a sailor?
87. Why does a duck put its head under water?
88. What wild animals may be correctly shut up in the same enclosure?
89. What makes a pair of boots?
90. Can you tell me why  
     A hypocrite sly  
     Is the man who best knows  
     Upon how many toes  
     A pussy-cat goes?
91. What tree is of the greatest importance in history?
92. Which is the most moral food—cake or wine?
93. Why is a good resolution like a fainting lady at a ball?
94. Why is a carpenter like a languid dandy?
95. When does a donkey weigh least?
96. What is the last blow a defeated ship gives in battle?
97. What had better be done when there is a great rent on a farm?
98. Why is an uncomfortable seat like comfort?
99. What two letters do boys delight in, to the annoyance of their elders?
100. What single word would you put down for £40 borrowed from you?
101. When is a river like a young lady's letter?
102. Why is the Bank of England like a thrush?
103. Why would a pelican make a good lawyer?
104. Describe a suit of old clothes in two letters.
105. Which is the proper newspaper for invalids?
106. What American poet may be considered equal to three-fifths of the poets, ancient and modern?
107. What precious stone is like the entrance to a field?
108. When is a man like frozen rain?
109. Which of the stars should be subject to the game-laws?
110. What garden crop would save draining?
111. When does a cook break the game-laws?
112. Spell an interrogation with one letter.
113. When is a bill not a bill?
114. What pen ought never to be used for writing?
115. When is a subject beneath one's notice?
116. Why is a loyal gentleman like a miser?
117. Why is the letter *W* like the Queen's ladies?
118. What tune makes everybody glad?

119. Why are Dover cliffs like the letter D?
120. When is a straight field not a straight field?
121. Why is a fish-hook like the letter F?
122. What letter is that which is in-visible, but never out of sight?
123. How would you express in two letters that you were twice the bulk of your companions?
124. Why is attar of roses never moved without orders?
125. If the Greeks had pushed Pan into the Bay of Salamis, what would he have been when he came out?
126. When is a lady's arm not a lady's arm?
127. What is that which occurs once in a minute, twice in a moment, and not once in a hundred years?
128. What is an old lady in the middle of a river like?
129. When is a fish above its station?
130. When do we witness cannibalism in England?
131. When is a boy not a boy?
132. When is a piece of wood like a queen?
133. When is a skein of thread like the root of an oak?
134. What is that which has a mouth, but never speaks, and a bed, but never sleeps in it?
135. What word contains all the vowels in their proper order?
136. What letter used to be distributed at tournaments?
137. Why is a carriage going down a steep hill like St. George?
138. Why is I the happiest of all the vowels?
139. Why should you never employ a tailor who does not understand his trade?
140. Why are your eyes like friends separated by distant climes?
141. Why is a bad-tempered horse the best hunter?
142. What sort of a face does an auctioneer like best?
143. Why is the letter F like a cow's tail?
144. What is the difference between a husbandman and a sempstress?
145. What is it of which we have two every year, two every week, and two every day?
146. How does a boy look if you hurt him?
147. What medicine ought to be given to misers?
148. Why do British soldiers never run away?
149. What weight or measure would no competitor wish to be?
150. What part of a railway carriage resembles Fanny when she is sleepy?
151. Why is the letter R most important to young people?
152. Why is a healthy boy like England?
153. When is a book like a prisoner in the States of Barbary?
154. What wind would a hungry sailor prefer?
155. On which side of a pitcher is the handle?
156. When may a chair be said to dislike you?
157. What is that which divides by uniting and unites by dividing?
158. Why are young children like castles in the air?
159. What is higher and handsomer when the head is off?

160. Why is a proud girl like a music-book ?
161. Why is a short negro like a white man ?
162. Why are bells the most obedient of inanimate things ?
163. Why are boxes at a theatre the saddest places of public amusement ?
164. Why is the most discontented man the most easily satisfied ?
165. Why are ripe potatoes in the ground like thieves ?
166. Why is it unjust to blame cabmen for cheating us ?
167. When is a thief like a reporter ?
168. When is the French nation like a baby ?
169. What does a lamp-post become when the lamp is removed ?
170. What things increase the more you contract them ?
171. Why is a mother who spoils her children like a person building  
castles in the air ?
172. When you listen to your little brother's drum, why are you like a  
just judge ?
173. When is a tourist in Ireland like a donkey ?
174. Who always sits with his hat on before the Queen ?
175. Why is a pig in the drawing-room like a house on fire ?
176. When is a river not a river ?
177. What trade never turns to the left ?
178. What trade is more than full ?
179. Why is electricity like the police when they are wanted ?
180. When is a borough like a ship ?
181. Why are guns like trees ?
182. What town is drawn more frequently than any other ?
183. Who was the first postman ?
184. Why is little Prince Albert Victor like the two things in which  
children most rejoice ?
185. What is the key-note to good breeding ?
186. What is the difference between a sailor and a soldier ?
187. Why is a rook like a farmer ?
188. Why is anger like a potatoe ?
189. Why does pedestrianism help arithmetic ?
190. What trees are those which are the same after being burned as they  
were before ?
191. What is the best thing to do in a hurry ?
192. Why are cobblers like Sir William Ferguson ?
193. Which is the ugliest hood ever worn ?
194. What nation will always overcome in the end ?
195. When is butter like Irish children ?
196. On what tree would an ode be written which would name an Irish  
M.P. ?
197. What have you now before you which would give you a company, a  
veiled lady, and a noisy toy ?
198. What is the difference between Kossuth and a half-starved oyster ?
199. If Neptune lost his dominions, what would he say ?
200. Why is a Dorcas Society like an assembly of dishonest people ?



201. It went before Queen Mary—poor thing! It followed King William to the end—poor man!
202. Why is the letter A like noon?
203. Why is a five-pound note more than five sovereigns?
204. When was the greatest destruction of poultry?
205. In what respects were the governments of Algiers and Malta as different as light from darkness?
206. When is a young lady's cheek not a cheek?
207. When is her nose not a nose?
208. When is a boy not a boy?
209. When is a ship foolishly in love?
210. When is a ship like Harry's mamma?
211. What part of London would a horse most like to live in?
212. What do you put before nine to make it three less by the addition?
213. Why should you never attempt to catch the 12.50 train?
214. Who is the best pew-opener?
215. Given A B C, to find Q.
216. Which is the easier profession, a doctor's or a clergyman's?
217. What word of four syllables represents Sin riding on a little animal?
218. If I were in the sun and you out of it, what would the sun become?
219. Why is a tallow chandler the most unfortunate of all mankind?
220. What is it that walks with its head downwards?
221. Why are the hours from one to twelve like good Christians?
222. Why is a hen walking across the road like a conspiracy?
223. On which side of the church is the yew-tree planted?
224. Why cannot Napoleon III. insure his life?
225. How many wives does the Prayer-book allow?
226. Why have ducks no hereafter?
227. Why is a dog with a lame leg like a boy at arithmetic?
228. Why is an engine-driver like a schoolmaster?
229. What will a leaden bullet become in water?
230. Why is a person of short stature like an almanack?
231. Why is the smoke of tobacco like Port wine?
232. Why is a photograph like a member of Parliament?
233. Why is London Bridge like merit?
234. That which every one requires, that which every one gives, that which every one asks, and that which very few take.

### PUZZLES.

Look through the alphabet, and try  
If you the letter can descry

Which, added to those placed below,  
A small poetic verse will show.

H n l d t w e r s t h u g l m y w l,  
T h u l v e s t t h t, t h u l v e s t t h w l;  
R n l d a k s y u r h l l w t n e,  
S l s t, s s l e m n, s u n d s a l n o  
S m u r n f u l, u n n e l v e s t g,  
R f y u r h t i n g h w l t k n w.

The following letters are inscribed on a stone tablet placed immediately above the Ten Commandments in a country church in the north-west of England, and are deciphered with only one letter:

P R S V R Y P R F C T M N!  
V R K P T H S P R C P T S T N.

—  
| | | | |

Add five strokes to the above, and make nine.

—  
If the B m t put some : but if the B .

—  
I    )

Why is this gone ?

## SOLUTIONS AND ANSWERS.

### TO ACROSTICS.

I.			V.		
DOLL		GIRL	VICTORIA		PRINCESS
D	1 Dog	G	V	1 Vamp	P
O	2 Obi (Siberian river)	I	I	2 Interior	E
L	3 Leather	E	C	3 Cincinnati	I
L	4 Lull	L	T	4 Tin	N
			O	5 Oc (old form of out)	C
			R	6 Repose	E
			I	7 Iris	S
			A	8 Ass	S
II.			VI.		
BIRD		SEED	SARAH		ISAAC
B	1 Business	S	S	1 Sinai	I
I	2 Ice	E	A	2 Ananias	S
R	3 Ride	E	E	3 Rama	A
D	4 Diamond	D	A	4 Anna	A
			H	5 Havoc	C
III.			VII.		
VEIL		MAID	WORLD		DEMAS
V	1 Vacuum	M	W	1 Widowhood	D
E	2 Enna	A	O	2 Obeisance	E
I	3 Iceni	I	R	3 Redeem	M
L	4 Land	D	L	4 Libya	A
			D	5 Dorcas	S
IV.			VIII.		
NEEDLE		THREAD			
N	1 Nut	T			
E	2 Earth	H			
E	3 Eider	E			
D	4 Dome	E			
L	5 Laura	A			
E	6 Emerald	D			

VIII.		XI.	
BRIDE		DEATH	
B	1 Bed	D	
R	2 Revenge	E	
I	3 Idea	A	
D	4 Debt	T	
E	5 Elizabeth	H	
IX.		XII.	
GLAISHER		LOVER	
G	1 Gab	L	1 Loyalty
L	2 Laputa	O	2 Ohio
A	3 Arsenal	V	3 Vertu
I	4 Ichuriel	E	4 Eft
S	5 Salambo	E	5 Ruth
H	6 Hoang Ho		
E	7 Evelyn		
U	8 Regulus		
X.		ALEXANDRA	
CRYSTAL		FLENSBURG	
C	1 Cap	F	1 Flora
R	2 R.A.	L	2 Loyal
Y	3 Yarrell	E	3 Ease
S	4 Senna	N	4 Nox
T	5 Tactic	S	5 Saga
A	6 Arachne	B	6 Beacon
L	7 L (ell)	U	7 Unaided
		R	8 Robber
		G	9 Godiva

## TO CHARADES.

- |                     |                  |
|---------------------|------------------|
| I. Marshal-sen.     | IX. Light-house. |
| II. King-fisher.    | X. Lily-leaf.    |
| III. Bride-groom.   | XI. La-tin!      |
| IV. Foot-fall.      | XII. Sun-day.    |
| V. Curl-papers.     | XIII. Snow-ball. |
| VI. Foot page.      | XIV. Bow-string. |
| VII. Looking-glass. | XV. A-las.       |
| VIII. In-valid.     | XVI. Rhn-barb.   |

## TO ENIGMAS.

- |                  |  |
|------------------|--|
| I. The letter O. | IV. The yew (you), the plane (plain)     |
| II. Hope.        | tree, the medlar, the beech (beach), the |
| III. The press.  | O-range! the O-live! the tea tree.       |
|                  | V. Letter H.                             |

## TO REBUSES.

- |  |                                      |
|--|--------------------------------------|
| I. CHARITY. C, Ceres; H, hope; A, ant; | III. Rock-Cork (letters transposed). |
| T, ring; I, inn; T, tornado; Y, youth. | IV. Log; Og.                         |
| II. A lass (alas!)                     |                                      |

## TO ANAGRAMS.

- |  |  |
|--|--|
| 1. Misanthrope.                          | 13. Peregrination.                             |
| 2. Astronomers.                          | 14. Potentates.                                |
| 3. Old England.                          | 15. Penitentiary.                              |
| 4. Revolution.                           | 16. A joint-stock company.                     |
| 5. Presbyterian.                         | 17. Lawyers.                                   |
| 6. Telegraphs.                           | 18. Breakfast.                                 |
| 7. Malt-house.                           | 19. Punishment.                                |
| 8. Radical reform.                       | 20. Demonstration.                             |
| 9. James Stuart.                         | 21. Enigmatically.                             |
| 10. Char-i-table ( <i>chair table</i> ). | 22. Sir Roger L'Estrange the newspaper editor. |
| 11. Solemnity.                           |  |
| 12. Civic.                               |  |

## TO SQUARE WORDS.

1			2			3			8			9			
O	D	E	M	A	T	W	I	T	N	I	G	H	T	H	E
D	E	Y	A	L	E	I	E	E	I	D	L	E	R	E	A
E	Y	E	T	E	A	T	E	N	G	L	A	D	E	A	G
4			5			6			7			10			
D	O	M	S	P	O	T	A	T	A	G	O	E	S		
O	P	E	N	P	A	P	A		C	I	V	I	L		
M	E	A	D	O	P	A	L		E	L	I	Z	A		
E	N	D	S	T	A	L	L		S	N	L	A	H		
6			7												
E	D	E	N	A	T	O	M								
D	O	V	E	T	Y	N	E								
E	V	E	R	O	N	C	H								
N	E	R	O	M	E	E	K								

## TO CONUNDRUMS.

- |   |   |
|---|---|
| 1. Into his fortieth year.  | 11. The footman.  |
| 2. The elder tree.  | 12. Smo-king and soa-king.  |
| 3. Pepper and salt.   | 13. When it has a hole in it.   |
| 4. Because they practise their professions.   | 14. Because it covers its face with its hands, and runs down its own works.     |
| 5. She pulled his ears and trod on his corn.  | 15. Because it is always in fun.  |
| 6. Because they are the weaker vessels.   | 16. Because they have ears which can't hear, eyes which cannot see.             |
| 7. When long experience has made him sage.  | 17. Caper sauce.  |
| 8. Englishmen. In Scotland there are men of Ayr (air), in Ireland men of Cork; but in England are <i>lightermen</i> . | 18. Because she's a-mountain!   |
| 9. K. N. (Cayenne).   | 19. It never does right (write) of itself.                                      |
| 10. Because when you separate the head from the body, you don't take it from the trunk.                               | 20. Because Gee (G) makes it go?  |
|   | 21. Because they make people steel (steal) pens, and say they do write (right). |
|   | 22. Because the train always runs over sleepers.                                |
|   | 23. When it is a-drift.   |

24. *Columbus*.
25. Chap. I.
26. Because it is a head (s)centre.
27. He is an India gent (indigent).
28. A muggy day.
29. One is hard up and the other soft down.
30. Yes; they are Macaw-lays (Macaulays).
31. Inn-attention.
32. Mouse.
33. When he sits down to wine (whine) and pine.
34. Bank notes, and they make (four) for-tunes.
35. When he takes a roll in bed.
36. Because he runs for cups, plates, and stakes (steaks).
37. When there's a leak (leak) in it.
38. Stone.
39. When they are mustered (mustard).
40. It makes oil, boil.
41. Because it makes ice into rice.
42. Quick.
43. One skims milk and the other skims water.
44. The elephant the most, because he carries a trunk. The fox and cock the least, as they have only a brush and comb between them.
45. None; they are all carried to it.
46. Because there was a heavy swell on the beach, and a little cove running up into the land. (This riddle is a slang one.)
47. Because they banished the whites and cast off their yoke (yolk).
48. A policeman when he is wanted.
49. A pig, because he is killed first and cured afterwards.
50. The one who has the largest head.
51. When it is a little tart.
52. Because the cabman always drives over your head.
53. Because they sell what they knead (need) themselves.
54. Because it is uttered but not allowed (sloud).
55. The Great Bear (grate bare).
56. Putting the fire out.
57. His daughter.
58. When she is turned into a field.
59. Because they are in-sects
60. Because he thought it a good opening for a young man.
61. Because he is 'listed, trained, has ten drills (tendrils), and shoots.
62. The half, because the full moon is as light again.
63. When the hedges are shooting and the bull-rushes out.
64. Because his is all net profit.
65. Ashes.
66. Because we cannot get on (O N) well without them.
67. To make your waistcoat first.
68. Because he shows an open countenance in the act of taking you in.
69. Because there's always a better.
70. Because for every grain they eat they give a peck.
71. When she wishes for a mate.
72. A step-father (farther).
73. A scarlet runner.
74. Because it is not current (currant).
75. Nothing.
76. It is matchless.
77. Because he is guided by the directions of strangers.
78. A noise.
79. C P O (Scipio).
80. It would be making game of him.
81. She is your mother.
82. A player.
83. It is between two seas (C's).
84. It has no scruples.
85. Because it is one of the great composers of modern times.
86. When he is a-loft.
87. For diver's reasons.
88. Sixteen ounces in one pound.
89. Two boots.
90. A hypocrite neat  
Can best count her feet (counterfeit);  
And so, I suppose,  
Can best count her toes.
91. The date.
92. Cake, because it is only sometimes tipsy, while wine is often drunk.

93. Because it ought to be carried out.
94. Because he often feels a great deal bored (board).
95. When he is within the pound.
96. Striking her own flag.
97. It had better be sown (sown).
98. Because it is devoid of ease (Es)—  
(there are no Es in the word *comfort*).
99. Two Ts (to tease).
100. XL lent (excellent).
101. When it is crossed.
102. Because it often changes its notes.
103. He knows how to stretch his bill.
104. C D (seedy).
105. The "Weekly (weakly) News."
106. Poe.
107. A-gate.
108. When he is hale (hail).
109. Shooting stars.
110. Leeks.
111. When she poaches eggs.
112. Y (why?).
113. When it is duo (dew).
114. A sheep-pen.
115. When it is under consideration.
116. He knows the value of his sovereign.
117. It is always in waiting.
118. For-tune.
119. They are next the sea (C).
120. When it is a rye (awry) field.
121. Because it will make an eel feel.
122. I.
123. I W (I double you).
124. Because it is sent (scent) wherever  
it goes.
125. A dripping Pan.
126. When it is a little bare (bear).
127. Letter M.
128. Like to be drowned.
129. When it rises and takes a fly.
130. When we see a rash man eating a  
rasher.
131. When he is a regular brick.
132. When it is made into a ruler.
133. When it is full of knots.
134. A river.
135. Factions.
136. Largest (S).
137. It is drawn with a drag on (dragon).
138. Because it is in bliss, while most of  
the others are in Purgatory.
139. Because you would get bad habits  
from him.
140. They correspond, but never meet.
141. Because he soonest takes a fence  
(takes offence).
142. One that is for-bidding.
143. It is the end of beef.
144. The one gathers what he sows; the  
other sows what she gathers.
145. Vowels.
146. It makes him yell "Oh" (yellow).
147. Anti-money (antimony).
148. Because they belong to the standing  
army.
149. The last.
150. The wheel, because it is tired.
151. Because without it we should have  
neither Christmas nor a New Year.
152. He possesses a good constitution.
153. When it is bound in Morocco.
154. One that blows foul (fowl) and chops  
about.
155. The outside.
156. When it can't bear you.
157. Scissors.
158. Because their existence is only in-  
fancy.
159. A pillow.
160. She is full of airs.
161. He is not at all black (a tall black).
162. Because they make a noise when-  
ever they are tolled (told).
163. Because they are always in tiers (in  
tears).
164. Nothing satisfies him.
165. They ought to be taken up.
166. Because we call them to take us in.
167. When he takes notes.
168. When it is in arms.
169. A lamp lighter.
170. Debts.
171. She indulges in-fancy too much.
172. Because you hear both sides.
173. When he is going to Bray.
174. Her coachman.
175. Because the sooner it is put out the  
better.

176. When it is eye water (high water).  
 177. A wheelwright.  
 178. Fuller.  
 179. Because it is an invisible force.  
 180. When it is under canvass.  
 181. People plant them, and they shoot.  
 182. Cork.  
 183. Cadmus. He carried letters from Phœnicia to Greece.  
 184. He is the sun and air (son and heir) of England.  
 185. B natural.  
 186. One tars his ropes, the other pitches his tent.  
 187. He gets his grub by the plough.  
 188. It shoots from the eye.  
 189. It is a Walkinghame (walking game).  
 190. Ashes.  
 191. Nothing.  
 192. They are skilled in the art of healing (healing).  
 193. Falsehood.  
 194. Determination.  
 195. When it is made into little Pats.  
 196. Ode on a yew (O'Donoghue).  
 197. Co-nun-drum.  
 198. One is a native of Hungary, the other a hungry native.  
 199. I have not a notion (I have not an ocean).  
 200. It is very sew-sew (so-so) society.  
 201. Letter M.  
 202. It comes in the middle of the day.  
 203. Because when you put it in your pocket you double it, and when you take it out you find it in creases.  
 204. When King Claudius of Denmark did "murder most foul" (fowl).  
 205. The one was governed by days (days), the other by knights (nights).  
 206. When it's a little pale (pall).  
 207. When it's a little reddish (radish).  
 208. When he is a spoon.  
 209. When she is anchoring (haukering) after a swell.  
 210. When she is attached to a buoy (boy).  
 211. Gray's Inn (Grazing) Lane.  
 212. S IX (S added).  
 213. Because it would be 10 to 1 if you caught it.  
 214. One bob (*i. e.*, one shilling).  
 215. Take C A B, and drive through Hammersmith to find Kew (Q).  
 216. A clergyman: he preaches, the doctor practises.  
 217. Sin-on-a-mouse (synonymous).  
 218. Sin.  
 219. Because all his works are wick-ed, and all his wick-ed works are brought to light.  
 220. A nail in a shoe.  
 221. Because they are always on the watch.  
 222. It is a fowl (foul) proceeding.  
 223. The outside.  
 224. Because no man living is able to make out his policy.  
 225. Sixteen: for (four) richer, for (four) poorer, for (four) better, for (four) worse.  
 226. Because they have their necks twirled in this. (Next world sounds like necks twirled.)  
 227. He puts down three and carries one.  
 228. Because one trains the mind, and the other minds the train.  
 229. Wet.  
 230. Because he is often overlooked or looked over.  
 231. Because it comes out of a pipe.  
 232. Because it is a representative.  
 233. It is often passed over.  
 234. Advice.

## TO PUZZLES.

1. The letter O, inserted thus before and after the consonants:  
 "Oh! on old towers, thou gloomy owl,  
 Thou lov'st to hoot, thou lov'st to howl,  
 Or on old oaks your hollow tone,  
 So lost, so solemn, sounds alone  
 So mournful, no one loves to go,  
 Or of your hooting howl to know."
2. The letter E:  
 "Persevere, ye perfect men!  
 Ever keep these precepts ten."
3. NINE.  
 4. If the grate be empty put some coal on, but if the grate be full, stop.  
 5. Because it is D parted (departed).

## TO NAMES OF PERSONS AND CITIES.

1. To quicken vegetation and stimulate its SAP PHOSPHATES are largely employed.

2. Children POP Everything into their mouths.

3. In the island of SerenDIB DINner consists of rice.

4. Man GOETH Every day to his labour till the evening.

5. The joint was so LEAN DERisive

shouts greeted its appearance.

6. When her father began to scold, she rose and left THE ROOM.

7. If I had a coal PIT The miners should use the safety lamp.

8. The taste for FOX hunting is peculiar to the English.

9. He ordered them to put the grapNELS ON their places in the ship's side.

1. Let me HOPE KINd friends for your approbation.

2. The crew were obliged to RIG A jury-mast in the storm.

3. Napoleon is one of the most som-BRE MEN of his day.

4. Caesar was sensitive to any TAUNT-ON his baldness.

5. There I saw ANNA POLishing my boots.

6. The mutiny broke out in the military CANTONments.

7. Titians has the SAME MELlifuous voice as ever.

8. The prettiest children are not always THE BEST.

9. French students seldom remem-BER GENders and cases.

10. They say it was a MAD RAScal who tried to kill Bismarck.

11. Is not every rosebud accompanied by a THOEN?

12. Did you see the gooseberry BUSH I REceived from the country?

13. On that glassy slope rabbits ABound.

14. How glad I AM OYsters are in again!

15. Zeno did not HATE HERA Notwithstanding her bad temper.

16. While firing a BOMB A Young artilleryman shot off his finger.

17. Is there any rinderPEST Hereabout?

18. I hate public meetings, there is always such a DIN AND clatter.

19. I always take aN ICE at the Crystal Palace concerts.

20. "I'll never fight Tom Sayers again," cried HeeNAN TESTily.

21. The ParliAMENT ON Every occasion lately has pooh-poohed Reform.

22. Minerva was a gODDESS And a strong-minded female.

23. What shall we play at, TOM SKitties I should prefer.

24. FROM Eve to morn, from morn to dewy eve.

25. The same day that saw the outbreak of WAR SAW also the advance of the French.

26. Generally ON Sundays people dine at two o'clock.

27. Down fell the tINKER MANGled by the bulldogs.

28. Mademoiselle ParePA RISes every morning at six o'clock.

29. Where is "The SaturdAY Review" published?

30. My Roman books ARE VELJum-bound.

31. They cut off the WATER FOR Dun-can would not pay the rate.

32. December NEver came so mildly as this year.

33. That river is very opaQUE BE Careful, or you may be drowned.

34. Americans think thaT ROYalty ought to be abolished.

35. It was Paul IvanoVICH You saw at the fair.

36. Having fitted the coat, the tailOR-LEANS on his elbow and contemplates his work with satisfaction.

37. The best junIPER And the best alcoh-ol are required for real Schiedam.



## PUZZLES, &amp;c.

## ARITHMETICAL PUZZLE.

TO GIVE THE ANSWER OF A YET UNWRITTEN SUM.—Write down five figures; for example, 3 4 6 8 2. Give the paper to one of the company, and request her to put five figures under these. While she is doing so, write what the total of the sum will amount to, on another piece of paper, and give it to one of the company to keep. The answer will be found thus:

Take 2 from the right-hand figure of the five you have written, and put it (*i.e.*, the 2) on the left-hand side. The figures of the above example would then stand thus:—2 3 4 6 8 0.

When the person to whom you have given the sum has added a row, take back the paper and add a third row of figures yourself, each of which, *with the second row*, must make *nine*, thus:—

Original row	.	.	.	.	3	4	6	8	2
Company	.	.	.	.	8	2	4	0	6
Self	.	.	.	.	1	7	5	9	3

Then give the paper to another member of the party (in order to puzzle them), and let her put down a row of whatever numbers she pleases; take it back and add the fifth and last row yourself, making *nine* of each figure of the fourth and fifth row as before, thus:—

Original row	.	.	.	.	3	4	6	8	2
Company	.	.	.	.	8	2	4	0	6
Self	.	.	.	.	1	7	5	9	3
Company	.	.	.	.	4	2	6	1	9
Self	.	.	.	.	5	7	3	8	0

Now ask another member of the party to add up the sum. When she has done so, desire her to compare it with your answer, long ago given, and she will find the amount exactly similar.

## THE FLYING GAME.

The players sit round the table. The leader begins by saying, "Robins fly!" and raises and waves his or her hands like wings: everybody present must do the same. Then he or she continues with great rapidity, "Eagles fly!—moths fly!—bees fly!—ravens fly!—thistledown flies!—feathers fly!" &c., &c., each time waving his or her hands. At length he or she says something flies which *does not*, and keeps his or her hands still; but the players generally (if it is done quickly) will mistake, and wave theirs at the wrong time. Whoever does so pays a forfeit. The leader should endeavour to confuse the followers by saying, "Cowards fly!—ants fly!" (ants *do* occasionally fly)—"plovers fly!" &c., &c.; and then, "Grasshoppers fly!—dogs fly!" &c., &c. Any mistake made either way must be atoned for by a forfeit.

## A LITERARY GAME, PLAYED WITH COUNTERS.

The names of all the great authors of England, France, Germany, Italy, and America are put into a bag. Each player draws a name, reads it, and must instantly repeat the title of *one* of the same author's works. If he or she hesitates, any other player who can remember a title repeats it. The puzzled player must instantly pay a counter to the one who spoke first.

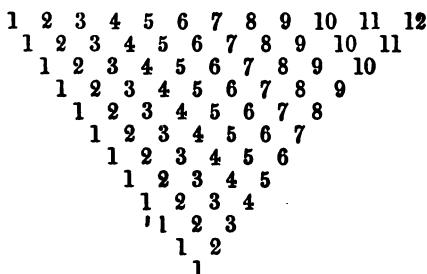
At the end of the game, the one who has most counters wins.

## MAGIC NUMBERS.

## GAME I.

Choose from these magic numbers, and thus learn:

1. Your favourite flower.
2. Your favourite virtue.
3. Your favourite historical character.
4. Your favourite poet.
5. Your favourite composer.
6. Your favourite fault.



## ANSWERS.

## QUESTION 1.

- |  |   |
|--|---|
| <ol style="list-style-type: none"> <li>1. Rose.</li> <li>2. Pansy.</li> <li>3. Dandelion.</li> <li>4. Daisy.</li> <li>5. Peony.</li> <li>6. Geranium.</li> </ol> | <ol style="list-style-type: none"> <li>7. Cowslip.</li> <li>8. Primrose.</li> <li>9. Jasmine.</li> <li>10. Violet.</li> <li>11. Sweet Pea.</li> <li>12. Columbine.</li> </ol> |
|--|---|

## QUESTION 2.

- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1. Courage.</li> <li>2. Gentleness.</li> <li>3. Fortitude.</li> <li>4. Industry.</li> <li>5. Truth.</li> <li>6. Pity.</li> </ol> | <ol style="list-style-type: none"> <li>7. Benevolence.</li> <li>8. Generosity.</li> <li>9. Meekness.</li> <li>10. Temperance.</li> <li>11. Prudence.</li> <li>12. Loyalty.</li> </ol> |
|---|---|



## QUESTIONS.

1. What do I like best?
2. What is my character?
3. What is my chief hope?
4. In what do I excel?
5. What is my most earnest wish?
6. Of what am I thinking?

## ANSWERS.

## QUESTION 1.

- |              |                        |
|--------------|------------------------|
| 1. Eating.   | 7. Scandal.            |
| 2. Sleeping. | 8. Croquet.            |
| 3. Hunting.  | 9. Admiration.         |
| 4. Talking.  | 10. Fast young ladies. |
| 5. Music.    | 11. Green tea.         |
| 6. Flattery. | 12. Reading.           |

## QUESTION 2.

- |                        |                 |
|------------------------|-----------------|
| 1. Gentle.             | 7. Observant.   |
| 2. Firm.               | 8. Prudent.     |
| 3. Timid.              | 9. Foolish.     |
| 4. Obstinate.          | 10. Impatient.  |
| 5. Weak.               | 11. Energetic.  |
| 6. Nothing particular. | 12. Changeable. |

## QUESTION 3.

- |                        |                                      |
|------------------------|--------------------------------------|
| 1. To please.          | 7. To be loved.                      |
| 2. To be well dressed. | 8. To be invited to croquet parties. |
| 3. To be admired.      | 9. To be useful.                     |
| 4. To do good.         | 10. To be married.                   |
| 5. To be rich.         | 11. To win an archery prize.         |
| 6. To be talked about. | 12. To sing well.                    |

## QUESTION 4.

- |                 |                           |
|-----------------|---------------------------|
| 1. In mischief. | 7. In patience.           |
| 2. In scandal.  | 8. In nonsense.           |
| 3. In goodness. | 9. In music.              |
| 4. In tattling. | 10. In dressing yourself. |
| 5. In flirting. | 11. In folly.             |
| 6. In nursing.  | 12. In kindness.          |

## QUESTION 5.

- |   |                          |
|---|--------------------------|
| 1. To become a great lady.                | 7. To have a cup of tea. |
| 2. For the company to admire me.          | 8. To go home.           |
| 3. To be the best dressed of the evening. | 9. To be asleep.         |
| 4. To be of use to everybody.             | 10. To be amused.        |
| 5. To make myself agreeable.              | 11. To be envied.        |
| 6. To display my cleverness.              | 12. To be loved.         |

## QUESTION 6.

- |                                |                                      |
|--------------------------------|--------------------------------------|
| 1. Of yourself.                | 7. Of what we shall have for supper. |
| 2. Of an absent friend.        | 8. Of a croquet game.                |
| 3. Of plum-pudding.            | 9. Of your favourite cat.            |
| 4. Of the last book you read.  | 10. Of your friend's pretty face.    |
| 5. Of the leader of this game. | 11. Of nothing.                      |
| 6. Of your own dress.          | 12. Of the multiplication table.     |

## GUESSES ANSWERED IN CHARACTER.

One player leaves the room; those remaining in it assume different characters—as Wellington, Nelson, Oliver Cromwell; or poets—as Milton, Shakspeare, Cowper, Scott, &c.; or historians—as Macaulay, Hume, Froude; or any living person of celebrity. The player outside is recalled, and has to ask *two* questions of each of the others. In the answers some allusion must be made to the peculiarities of character or genius of the person whose name has been selected, or to the works of the writers. From these the guessers divine the characters chosen.

## EXAMPLE.

NORA. Are you fond of music, Charlie?

CHARLIE. Yes: "the man who hath not music in his soul" is fit for any mischief.

NORA. *Everybody* knows that *you* are Shakspeare. I shan't ask you another question. Are you fond of Christmas games, Philip?

PHILIP. That *is* a question! I really can't tell what my prototype would say! But I suppose he would have answered, with me, that when Duty was done, Pleasure was always agreeable.

NORA. You are Nelson.

PHILIP. No. Pay a forfeit.

NORA. Then you are Wellington.

PHILIP. Second guesses are not allowed.

NORA. Mary, when will you have finished your tatting? I think *that* question will puzzle you to answer.

MARY. Not at all. I have set myself the Task, and I mean to get it done by Christmas Day.

NORA. Cowper!—"The Task."

NORA. Fanny, why do you wear those pink ribbons?

FANNY. Because I like them; for I am not of a "beauty" that "un-adorned's adorned the most."

NORA. You are Thomson; but you quote very awkwardly. Anna, have you found your thimble?

ANNA. No, I have not. I don't care, for my chief wish at present is that ladies may have votes; so, you see, I have no time to think of thimbles.

NORA. Better for you if you had. I suppose you are Mr. Mill. I wonder you chose him! Now it is your turn to go out and become guesser.

## SKELETON POEMS.

This game requires some poetical knowledge or ready wit.

A certain number of rhymes are given by one player, who is chosen President for the occasion, and the others are required to fill them in from well-known poets. Whoever fails in so doing must pay a forfeit, unless she can fill in the line herself, and thus produce original—nonsense. The latter mode of playing the game is generally preferred.

## EXAMPLE.

CHARLIE gives the following rhymes:

fade  
tomb  
maid  
gloom  
dear  
tear

The players, with paper and pencil, fill in the lines.

PHILIP.—Here is my line.

THE OTHERS.—And here are ours.

CHARLIE (*chosen President*) reads aloud:

"Philip's—'All that's bright must fade.'—Moore.

"Ada's—'Light be the turf of thy tomb.'—Byron.

"Nora's—'Where are you going to, my pretty maid?'

"Mary's—'I wander in dreary gloom.'—Original.

"Fanny's—'Turn, Angelina, ever dear.'—Goldsmith.

"Anna's.—'The soldier turned upon the hill, and wiped away a tear.'—Campbell."

Charlie then gave the following rhymes:

fiddle  
riddle  
fame  
name  
sigh  
fly

CHARLIE again reads aloud the filled-up lines, which are found to be these:

"Philip's—'It is not every one who can play on the fiddle.'

"Anna's—'Men all allow that woman is a riddle.'

"Fanny's—'And though we naturally seek for fame,'

"Ada's—'What is there in a name?'

"Nora's—'When thy bosom heaves a sigh.'

"Mary's—'Oh! walk into my parlour, said the spider to the fly.'"

When played by a number, these skeleton poems often afford matter for much mirth.

### GAME OF CHRONOGRAMS.

The players are seated round the table. A number of dates are written on scraps of paper, and put into a bag. Each player is provided with a piece of paper and a pencil, and has to find names of poets, sovereigns, historians, or remarkable characters, the first letters of whose names will make, in Roman characters, the date he holds.

When all the players are ready, the leader of the game collects the papers, and reads aloud the names selected for their initials. A forfeit is paid for every mistake, and for every figure for which it may be impossible to find an initial.

**EXAMPLE.***Sovereigns.*

1868	{	Mary, Queen of Scots	}	MDCCCLXVIII.
		Duncan, King of Scotland		
		Charles I. of England		
		Charles II.,		
		Catherine I. of Russia		
		Leo X., Pope		
		Xerxes, King of Persia		
		Victor Emmanuel of Italy		
		Isabella of Castile		
		Innocent V., Pope		
		John, King of England		

Any dates may be given, and may be made from names of sovereigns (as above), or of writers, or of places, as the leader settles.

**EXAMPLE.***Writers.*

1869	{	Milton	}	MDCCCLXIX.
		Dante		
		Cowper		
		Coleridge		
		Campbell		
		Lamb		
		Xavier		
		Ignatius		
		Xenophon		

**GEOGRAPHICAL CHRONOGRAPH.**

1868	{	Madeira	}	MDCCCLXVIII.
		Denmark		
		Cairo		
		Cumberland		
		Courland		
		Lithuania		
		Xeres de la Frontera		
		Valladolid		
		Iceland		
		Ireland		
		Inverness		

**GEOGRAPHICAL GAME.**

One player is chosen for leader. He says, "I am a river god: my river is the Rhine. It flows past —," and each of the other players suggests towns, fortresses, &c., passed by the river. The one who remembers the most places, receives the most counters (one is given for every name mentioned), and wins the game; and, becoming leader in turn, suggests another river to her companions.

# HOME OCCUPATIONS.

## ON THE DECORATION OF HOUSES WITH LADIES' WORK.

The *nouveaux riches*, without any dependence on their own taste, allow the upholsterers to furnish their houses with what is most expensive, and the result is decidedly vulgar. Others of a certain old-fashioned respectable type would never think of having anything but heavy mahogany furniture in the best bed-room, oak in the dining-room, and damask in the drawing-room, for the all-sufficient reason that their grandfathers and grandmothers did so before them. The inside of a lady's house is very much an index to the lady herself; and now, in an age when even the kitchen jugs are made of artistic shape, it behoves every gentlewoman to make her rooms as attractive as possible, by a careful observance of such taste as cannot be purchased with money.

A house may be ornamented in a hundred ways with a little trouble, and in such a manner as will not make it a duplicate of half those you visit at.

### CORNICES.

Ladies who are artists may paint many things, independent of the pictures hanging on the walls; for instance, a deal cornice made in vandykes, of this shape—



with a flower in each, and filled up with white or black paint, and a narrow gilt edge, looks very well in a bed-room. The flowers or design might match the curtains—roses for a rose and white chintz, or white lilies on a green ground for a white and green one. The carpenter would make the cornice in the first instance; but the painting, gilding, and varnishing should all be done by the amateur.

### DRESSING-TABLE.

Let this be draped with colour, and covered over with white muslin. If the curtains are allowed to open in front, it allows of the person dressing getting quite near to the mirror, besides making a neat repository, by means of a deal shelf across, for boots and shoes underneath. The pincushion should match the toilet-cover, and a drapery of lace and pink ribbon adorn



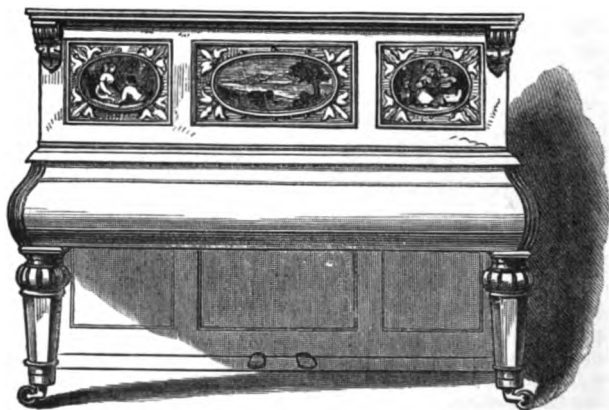
the looking-glass on either side. Trays are nicest to keep brushes and combs in, as they can be covered with little napkins, or pink-lined pieces of muslin trimmed with lace, and so kept free of dust.

### BOOK-CASES

Can be made easily and inexpensively by means of a few deal shelves covered with red baize, and a row of coarse white lace hanging down from each, or a strip of coloured leather fastened on by a row of brass nails.

### PAINTED DOORS

Are very ornamental to either a boudoir or drawing-room. These may have bouquets of flowers, a bird or two on a spray, lightly delineated on a light grey or white panel, done in oils by hand. Or a very quick and effective way of ornamenting a door is as follows: First paint the edges and cross-pieces of the frame with two coats of Brunswick black, the second to be put on when the first is quite dry. Next cut some oleographs of suitable subjects, such as landscapes or single figures, to fit in size and shape the panels. Paste these firmly and evenly on, and varnish with pale picture varnish. Let the carpenter then put a small gold moulding round the inside of each panel as a frame to the pictures, and your door is complete.



### PAINTINGS INTRODUCED INTO FURNITURE.

A cabinet looking-glass-frame, and even pianoforte, may be arranged so as to have small apertures for the introduction of paintings, either oil or water-colours, and made in such a manner that the pictures can be changed at will.

## TABLES

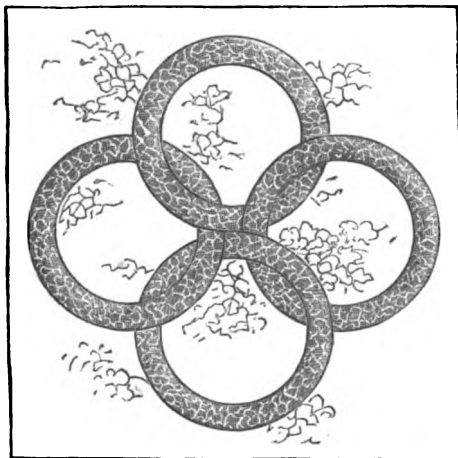
Covered with velvet and edged with fringe or lace, or covered with cloth and a border of Algerine or Renaissance embroidery, are pretty and light, and any of these things are suitable for a young lady's bed-room, who may wish to turn it into a kind of boudoir.

## MANTELPIECE.

A piece of velvet, about a quarter of a yard wide, surrounding a looking-glass, with brackets at intervals covered to match, and edged with lace or fringe, makes a wonderfully pretty setting for miniatures, gems, small statuettes, or china. The brackets may be carried up into a point at the top of the glass, where a vase of more imposing form should be placed, whilst a few Chinese screens between the brackets hanging from the sides look very tasteful.

## CHINA MOSAIC PAVEMENT.

Save all the broken china, and get your friends to keep the smashings of their kitchen and housemaids for you, and when you have collected a good quantity, proceed as follows: Cut some squares of paper the size to fit the



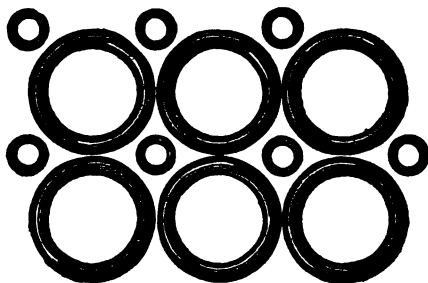
pavement or garden walk you wish to ornament, and then, having drawn your design roughly in pencil or pen and ink upon them, arrange the chips of china—which must all have an even surface, though the shape and size is of no consequence—upon them, with cement underneath. A blue cross or star upon a white ground, or a simple ring of one colour on a ground of

another; a monogram, or a square divided across into four and filled up with different colours, might all be easily done.

Let the chips fit as nearly together as possible. Then the surface on which you are going to put your pavement being perfectly even, let there be first a layer of cement, on which spread the sheets of paper. White cement must then be spread all over the surface of the china, and rubbed in so as to fill up all the interstices. The mosaic must be rubbed clear of all superfluous cement before being allowed to dry, or it will be difficult to get off afterwards. This pavement, which has a very pretty effect, and looks much like the common marble floors in Italy, once dry, allows of washing like any stone.

#### GLASS MOSAIC.

Another pavement for a summer-house may be made really pretty of broken wine bottles. The bottoms form the large rings, and the necks the small



ones; and these green glass circles, filled up with white cement, have a remarkably good effect, besides puzzling the uninitiated as to their origin.

#### FLOWERS IN VASES.

No lady's room should be without flowers, the arrangement of which, as a rule, is as often left to the taste of the gardener or parlour-maid as the mistress. Flowers in vases should never be crowded together. A single rose, or a spray or so of geranium, with plenty of green, looks infinitely more graceful than a mass of colour or colours. Have, therefore, but few flowers, and plenty of green, so that—as in nature—each flower may be in a setting after its own fancy.

Nature herself is the most perfect artist, so that you may safely adopt the same mixtures she does. Violets and primroses, that grow in the hedge-row together, with a few fern-leaves, make a charming bouquet; and what can be more beautiful than a bunch of corn, with a scarlet poppy or two, a bluet, and some large white daisies?

Never mix field and garden flowers in the same vase; and the fewer varieties you put in each vase, the better it will look.

## FIR-CONES USED AS ORNAMENTS.

Whilst on the subject of flowers, very pretty receptacles for them may easily be made by the help of fir-cones. Get a butter-tub sawn exactly in half. Drill holes through the cones, and pass a zinc wire through, with a loop for hanging it on by at the top. Festoon some stout rope round the



tub, and hang the cones on like tassels; mount the tub on a rough wooden stool, and give it all a coat of pitch. This will prevent the fir-cones blowing any more, and the wood from rotting with exposure to wet. The tub must be pitched inside as well as out, and then planted with an evergreen shrub and a few seeds of *nemophila*, or a root or two of ivy geranium in summertime, to fall over the sides and look graceful.

## TABLE DECORATIONS.

The dinner-table offers a large field for the display of taste in decorations, and it is a good plan to have some fanciful white wicker baskets, or tin, permanently planted with greenhouse ferns. These can be kept in the greenhouse when not required for use. Let there be a tall fern in the centre and smaller ones round it, and at the four corners some long trailing plant—such as creeping jenny or ivy geranium. When the basket is required for use, stick a row of fresh flowers in by the stalks round the edge—arum lilies, for instance, are handsome and effective, and will last an evening without water. Arrange the four bunches of trailing plants in the form of a star, placing the dessert-dishes between the spaces, and enliven them by tufts of scarlet geranium introduced amongst the green.

Small tin troughs in the shape of a horse-shoe, and painted white, should be filled with wet sand, and stuck full of flowerets of the scarlet geranium, bordered on each side by a beading of box-leaves, each leaf separate, laid on the tablecloth. These troughs are placed round each saltcellar.

These horse-shoes are also made of flat pieces of lead, covered with a layer of wet clay, in which the flowers are stuck. Leaves are pushed in at the edge to feather over on the cloth. They should be quite flat. Stars done in this way are very pretty. The tablecloth looks rich and handsome when unbleached.

The chief object in the arrangement of a dinner-table should be freshness and sweetness; then the meal becomes poetical and a fit banquet for the gods, instead of the mere replenishing of exhausted tissue.

A piece of looking-glass is sometimes placed as a centre ornament on a dining-table; but water thus represented is stagey. Real water and real flowers should be used rather than imitation, which is in very bad taste.

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### SCRAP SCREENS.

The first step towards a screen is to get the frame of it made by a carpenter. This may be either in wood round each panel and across, and covered with canvas, or entirely in thin wood like a door.

The first plan looks best, and is lightest, but has one disadvantage: the paper being very tightly stretched, is apt to get broken if the screen receives a knock, whilst the wooden one would resist a strong blow. In both cases your first proceeding will be to cover, or have done by a paperhanger, the entire screen with paper. This should be of some even colour that will take varnish.

French grey, lavender, egg-shell blue, sea-green, or crimson are the prettiest colours for either prints or coloured scraps to be mounted on.

The great mistake people fall into in making these large folding screens is to load them so with pictures and colour as to destroy all taste, and give them the appearance of grocers' windows decorated for Christmas-time; therefore, be careful not to overload your screen either with subjects or bright tints.

Having covered one side of the screen with grey paper, proceed to paste on the pictures which you may have amused yourself collecting and cutting out some months before. An immense quantity are required to ornament four panels 5 feet high on both sides, and the better plan is to have them all ready before starting, otherwise one panel may get over-filled, whilst another is but thinly covered.

Paste is much better than gum, and can be made very strong by boiling until it becomes glutinous, and adding to it a sixth part as much powdered alum as you put flour.

Having decided what your design is to be—whether a border of flowers with medallions in the centre, or a border of medallions interspersed with flowers and a bouquet in the centre, or a lot of pictures thrown down as if carelessly in the middle, and dancing figures or Arabesques all round—make a little drawing of it roughly in pencil on a piece of paper, and let that be your guide.



You cannot paste a flower on without its leaving a mark if you pull it off again, and an ungraceful group will only be rendered more hideous by putting anything over it to hide the defects; therefore, do not place a single leaf on without intention.

If you think of ornamenting it with medallions, cut them all evenly the same sized oval or round, and measure the spaces, and mark with a pencil before finally fixing them.

If you wish a panel or space filled with prints as if carelessly thrown down, they must not be stuck one over the other, but must only join like a Chinese puzzle. To make them fit in this manner, first measure the space they are to occupy; then clear a large table, and paste some thin strips of white paper on to it the exact size of that space. Place your prints within the radius of the strips of paper, taking care that the most important portions of the pictures are those unconcealed. As you place your prints, put a weight, stone, vase, book, or anything on each picture to keep it steady; then with a pencil draw a line round the outside rim of each. When all have been treated in the same way, remove the first, and cut with scissors along the pencil-line, and replace in its original position, and so on until they are all done. Begin to stick them on the screen in the same fashion, and the result will be a perfectly smooth surface, which, when varnished, will look exceedingly well.

Finish off the screen with a coloured stamped leather round the edges of the panels, a row of brass nails, and a couple of embossed brass handles to lift it up by when wanted to be moved.

It will be best to let an upholsterer varnish it, as it is a difficult process

for an amateur. It should have two coats of white size first, and then two of white varnish, when it will allow of the pictures being cleaned with a wet rag.

The oil prints published in "Illustrated News" and other almanacks, pretty little heads and faces, Christmas cards (especially De la Rue's large ones), &c., are the best kind of scraps to use, as they will take varnish well; also chromo-lithographs and steel engravings; but not water-colour drawings or common lithographs, which are porous, and will look spotty. The six-penny packets of a dozen British or other birds and flowers are suitable, either cut out or in medallions, and the coloured prints presented with the "Illustrated News" and "Queen" newspapers are sometimes good enough.

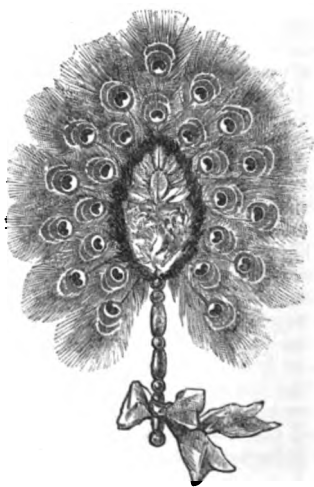
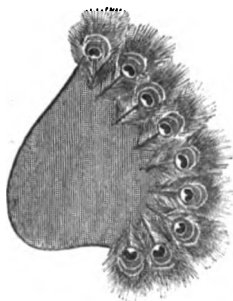
### FEATHER SCREENS.

Screens and fans in feathers are both pleasant and ornamental work.

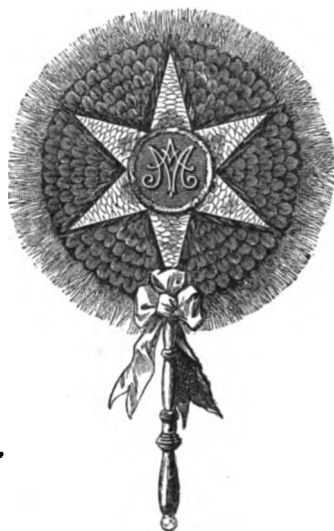
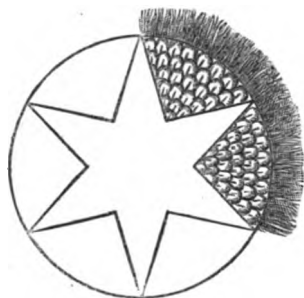
To make a screen, begin as follows: Mould a piece of wire into the shape of a heart, and cover this, by means of a needle and thread, with dark coloured gauze or tarlatane. Round the edge of this frame fasten a row of peacocks' feathers with gum. A very little gum put under the quills, and

left to dry with a weight on them, will make them easily adhere. Place a second row of feathers, so that the eyes of them come just between those of the first row. Next make another frame in the same manner as before, only let the edge of it only extend as far as the

quills of the second row of feathers. Border this with the side fringe feathers of the peacock's tail, and then dispose of some red ones at the top, or any kind fancy may dictate or you possess, finishing off with a bunch of grey fluff feathers, or a knot of crimson ribbon and a gilt handle. For the back, cut a piece of cardboard the exact shape and size of the foundation of the screen, cover it with crimson silk, and gum on behind. Another even prettier screen is made as follows, both sides alike:



Prepare a frame—circular in shape—as before, edge it thickly all round, by means of a needle and thread, with the fringe feathers of the peacock's tail. Then put alternately in the six spaces between the points of the star, rows of the small brown, gold, and green feathers from the neck and back of the bird. Cut out a star in cardboard, edge it on each side with a small



red feather, and cover the whole of the rest—by means of gum—one close over the other, with the bright blue feathers from the peacock's breast. Cut out a small circle in cardboard, which edge with a row of canary bird or any dyed yellow feathers, letting the centre be scarlet. On this a gold monogram in *repoussé* work may be placed. A gilt handle and knot of ribbon completes so elegant a fan, that one made for a wedding present was supposed to be the finest Brazilian work.

Mats made of cloth or straw are very pretty with a border of feathers. These may also be utilized for trimmings of hats, muffs, or jackets, particularly pheasants' and pea-fowls'. Trimmings are made by sewing the feathers on in rows of three and two, or three and four, one over the other, on a narrow ribbon of the same colour.

## PAINTING ON GLASS.

The mosaic system of glass-painting now practised is evidently a revival of that usually employed until the middle of the sixteenth century.

The course generally pursued of painting on glass according to the above method is as follows:

If the work is to be merely executed in outline, without shading, copy



the design on the glass by simply laying it over the drawing, and then tracing the pattern seen through the glass with enamel brown. If the glass is coloured, and so dark as to obscure the pattern, a tracing of the latter must first be made on white glass, and this being placed behind the coloured, the pattern will become quite visible through by holding up both pieces of glass to the light.

The preferable way, however, is to draw the outline of the subject to be painted on the back of the pieces of glass with Indian ink, or any other water-colour, so as to leave the front of the glass free for the use of the artist's pencil. He must next have recourse to an easel, formed of a large piece of glass fixed in a frame opposite the light.

The pieces of glass intended to be painted are then fastened in their order to that of the easel by means of small lumps of wax, or of bits of paper pasted to their edges and to the glass of the easel.

If the painting is intended to be smear-shaded, and the outlines have not already been drawn on the glass with enamel brown, the artist must proceed to put them in in the following manner:

Mix enamel brown to a proper consistency, either with spirits of turpentine, thickened by evaporation, or with gum senegal water, as this gum does not blister with heat. Next execute the shadows and diapers. To do this the artist must mix some enamel brown, as above mentioned, but of thinner consistency, and smear it with a brush over those parts intended to be in shadow by gradually raising the brush from off the glass as she passes it along. Thicken the coat of colour in the darkest part of the shadows, and if not strong enough, apply a similar coating to the back of the glass, which must, of course, be taken off the easel for this purpose. These shadows will present a streaky and uneven appearance, owing to the thickness of the coat of colour, caused by the tracks of the brush being unequal. Deep shadows, however, must always be opaque. In like manner a coloured ground is smeared over so much of the glass as is intended to be diapered, part of which, when dry, must be scraped off with a pointed stick or needle, so as to leave the diaper itself transparent.

If the picture is intended to be stipple-shaded, the outlines must first be put in with enamel brown, or left out until the shading is quite finished. In either case cover the whole of the glass with a ground compound of enamel brown mixed with gum-water. Then dabble or stipple it over with a large long-haired soft brush before it has had time to dry. Hold the brush at right angles with the pane of glass, only allowing the tips of the hairs to touch the glass. By this process all smears left on the ground from the first application are obliterated, and the appearance of it is soft and granulated.

Stipple shadows, however dark, are invariably more transparent than smear shadows, as the colour is drawn up in little lumps by the hairs of the brush, leaving the interstices almost free from colour. When the ground is dry, scrape away the lights of the picture; and then, having previously moistened it with oil of spike lavender, deepen the shadows when necessary by another application of colour. Mix this with turpentine, and soften off

as it dries by dotting with a long-haired brush. The shadows may be also heightened by putting colour on the back of the glass opposite to them.

Diaper patterns are executed as before described, a stipple ground having been laid all over the glass. The stain, when used, is mixed with water, and floated on the back of the glass, generally to the thickness of about a sixteenth of an inch, just before it is put into the kiln.

The furnace in which glass is burnt is an iron box furnished with sliding shelves, and enclosed within an oven of brickwork. The glass is laid flat, the painted side upwards, on one of these shelves, covered with powdered whiting. When the glass has been sufficiently heated, the fire is raked off the grating below, every aperture carefully stopped, and the glass allowed gradually to cool and anneal itself. After being burnt and taken out of the kiln, the residuum of the stain must be washed or brushed off. When this has been removed, if the fire has been hot enough, the glass underneath will be found to be coloured—in this instance, yellow. The rest of the process—viz., to lead the glass together—is finished by the glazier.

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## CHINA PAINTING.

Painting on China is not nearly as laborious or mysterious an art as many people are led to suppose. It requires a thorough knowledge of the colours, which is soon acquired by practice, and with the help of a test tile, on which rows of the several colours used should be carefully laid on and then fired. Orange, for instance, applied in different ways, will give various effects, if but a small quantity of colour is used and thinly laid on: when fired, it produces a beautiful cream-coloured ground, and it can also be intensified till it becomes orange. The colours which are used in the potteries are in powder, and should be mixed on a palette or tile, with a glass muller, with turpentine, fat oil, and spike; being careful not to use too much of either the turpentine or fat oil, as they are apt to bubble the paints when fired. The French colours are to be had ready prepared at Lechertier Barbe's, in Regent Street; cleanliness being one of the chief requisites, as the colours should be kept as pure as possible and in a dry place.

The first lesson should be very simple, and done in one, or at the most, two colours. Having prepared the surface of a tile or plate by rubbing some turpentine on, take a pencil or fine camel's-hair brush, and draw in a careful outline with scarlet, lake, or sepia (ordinary water-colour paint), as, being vegetable colours, they burn out when fired. An easier method is to trace your design, and having pricked it with a compass-needle, transfer it to the plate by dusting a bag of pounce or black chalk over it. Now proceed to lay on the colour, leaving the high lights; put it on in a clear flat tint as near the shade you require as possible, without being afraid of spoiling the surface, as a clean piece of rag will soon wipe it off; blend the tints lightly together with a stippling-brush, and leave it to dry; when dry, touch in the veins and darker lines. Red and brown should be put in lightly

and quickly, as, by the nature of the colours, they require sudden even touches. It is much the fashion in china painting now to put in a firm but delicate outline, so as to give a good effect and finish at a distance: this is done by mixing the powder colour with a little water, treacle, and wax-water magilph, instead of the oil, turpentine, and spike; a separate palette should be kept for this.

Having finished your painting as far as possible, leave it for a day, or even two, before sending to be fired; if wanted in a hurry, place it in a plate-screen before a good fire, and it will be dry in an hour, or even less. At most potteries they fire twice in the week. After it has been fired once, compare it with the copy and retouch it wherever necessary. Your test tile will have shown you what colours become lighter or darker in the firing, so that a very few touches ought to suffice in the finish. If you elect to have it ornamented with gold, make a note of it when sending it to be fired the second time, as, being a purely mechanical work, it saves time and trouble having it done at the potteries. If you find the paint a little rough after the first firing, rub it gently over with very fine glass-paper before you retouch it. Paints vary a little in colour according to the places you purchase them at, so it is best to procure them at one place; and the brushes used for outline should be kept separate from those used for the oil-colour, and both should be well cleaned before putting away.

Lessons in pottery painting are to be had at most of the Art Pottery Galleries, the terms of instruction varying from seven and sixpence to one guinea a lesson. Lechertier Barbe's French colours are sold in complete cases for two and a half guineas; *they* are prepared ready for use, but the pottery galleries prefer their own powder colours, which are in bottles from eightpence to two shillings each, according to size and colour.

## PAINTING ON SILK FOR FANS.

The best way is to paint the silk first, and then send it to be made up into a fan. Choose a good gros grain silk, which may be procured ready traced and prepared for painting on from Madame Marcot, 18 Newman Street, Oxford Street. Cut the size in paper you wish your fan to be, and then let the silk be of the same dimensions, allowing an inch or so for margin. A good margin outside the traced outline on the silk must be left for turning-in and cutting. Use water-colours, with a little sugar put into the water. Too much white is likely to crack when dry. Liquid Indian-ink used with a brush looks very well on cream-coloured, white, pale blue, or other delicate tinted silks—the whole design being done in it; also cobalt and indigo on pale blue, and lake on pale pink, or sepia and burnt sienna on cream-coloured.

This kind of painting is very effective for those who do not understand using a variety of colours, and fans done in this way are light, pretty, and easy.

The design should be first made on paper, unless the artist is sufficiently sure of her powers to draw it at once on the silk; whilst the colours of what the flowers should be entirely depends upon that of the material worked on. Wild pink roses with variegated leaves and long trails, if mixed with blackberries, would look well on almost any coloured ground. Yellow roses also, with brown and green leaves, would be effective on black, so would a spray of red foxglove thrown in a slanting position across the fan, with a fern-leaf lying across it lower down, and perhaps a trail of convolvulus or bindweed twisting up the stalk, to take off any appearance of stiffness. Butterflies, also, are very pretty. A yellow butterfly hovering over blue hyacinths or violets on white would look well; or an emperor or humming-bird, with white or yellow roses, on black. Both Chinese white on the light parts, and touches of rich colour in the shades, may be used to advantage; but in all painting much depends upon the artist's taste.

Sticks may be procured and the fans afterwards made up at the same place where the silk is prepared.

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## COLLECTING AND PRESERVING PLANTS.

A collection of dried plants is not only very useful and instructive, but care and neatness in the execution may make such a collection very pretty. Such collections are usually called a *herbarium*, and every British botanist is ambitious to possess a herbarium of British plants. For such a purpose a few plain rules and instructions are all that is necessary, provided a good will is ready for the work.

Having resolved upon forming a collection, it will be prudent to prepare the tools beforehand, and these should consist of a pocket-lens, a tin box or vasculum, such as a japanned sandwich-box.

A few quires of paper of a spongy nature, so as to absorb moisture—such as grocers employ for wrapping sugar—will answer the purpose; but the size should be a little larger than that of the paper on which it is purposed ultimately to mount the specimens. A very good size for a sheet when folded in half is 17 inches by 11 inches, or it may be this size and not folded, which is perhaps most convenient. A stout deal board for the top and the bottom, and this also half an inch larger each way than the paper, should be provided. Three or four bricks tied up in brown paper will serve as weights, each brick forming a parcel. This will be all that is really essential until the plants are dried and ready for mounting.

As ferns are very good plants to commence with, and perhaps the easiest of any to preserve, we will apply our remarks to them, and when the method of drying is acquired by experiments upon them, other plants may succeed.

The collection of ferns for transplanting and the collection of fronds for preservation as botanical specimens are to be pursued at very different

periods of the year. It may be premised that for botanical purposes fronds destitute of fructification are worse than useless, unless they belong to species which produce distinct fertile and barren fronds, and in which the characters and appearance of these fronds materially differ. In such cases the two kinds of fronds should be collected and preserved together.

The period for collecting ferns for the herbarium is, therefore, manifestly that when the fructification has nearly attained to maturity, and it is always better to collect them on a dry day than on a very wet one. The collector should go out prepared for collecting ferns, if she desires that her herbarium should present a neat and respectable appearance when completed. Some recommend a vasculum, some a bag, and some a large book under the arm; but commend us to two  $\frac{3}{4}$ -inch deal boards, about 11 inches by 17 inches, with a strap and buckle for each end, and twenty sheets of good bibulous paper, cut to the same size, and placed between them. Having selected a good frond or two for preservation, taking care not to break the stipe or stalk, but to separate it from the rhizome or root-stock, bend back the stipe just below the lowest leaflets of the frond, breaking the woody portion, but not dividing it from the rest of the frond, and lay it carefully between a sheet of your bibulous paper, and secure it with the spare paper between your boards; then proceed in search of more. Fronds which with their stalks are not too long for the paper should be laid in without bending.

In selecting fronds for preservation, it is not the largest that are required, but it is rather advisable to collect such specimens as will lie comfortably between the papers without bending than to aim at procuring *fine* specimens, which may only prove to be a nuisance. A perfect frond of 9 inches in length is better than a folded or otherwise mutilated one of 19 inches. In selecting fronds, the fruit should not be too ripe, or instead of spores you will only find empty cases, not to mention the rusty dust that will continually tint your papers. It is better that the spores should be scarcely matured. Then, again, it should be noticed whether the frond is eaten by insects, broken, or in any other way imperfect. Such specimens are to be avoided if others can be obtained. Finally, the specimens selected should be well grown, and not distorted, unsymmetrical, or exhibit a tendency to sporting, or departure from the general type of the neighbouring fronds.

Having collected what specimens are required and conveyed them home, the next process consists of drying them for the herbarium. This is accomplished by removing them from the papers in which they have been collected and transferring them to fresh paper. Some persons are content with a stout unsized paper, such as employed by grocers for wrapping sugar, others will proceed to blotting-paper, whilst the majority will admit that Bental's botanical paper is decidedly the best. The ferns should be transferred to a sheet of drying paper; two or three thicknesses, or even four or five, may be placed upon it, and then another specimen, and thus *ad libitum*. When all are in this manner transferred, the pile should be placed in a press, or with a stout board above and below, loaded on the top with some heavy weights—stones, bricks, old books, or anything applicable for the purpose. Twenty-four hours at the least, and forty-eight at the most, they should remain un-

moved. At the expiration of this period each specimen should be transferred to a dry sheet of paper, with three or four thicknesses of dry paper between each specimen, and again put under pressure for the same period. The damp paper from which the specimens are taken should be at once dried in the sun or before the fire. It is always advisable to change the sheet for each *variety*. The specimens should be laid on the paper with the under or fructifying surface uppermost, and the barren side of the frond applied to the paper. Small strips of gummed paper, about 1 inch in length, and not more than  $\frac{1}{8}$  inch in width, should be laid across the principal and secondary ribs or branches of the frond, and each end fastened down to the sheet of paper; other pieces may, in like manner, be placed across the tips of the fronds, or wherever else appears to be necessary to secure the specimen to the paper. It may be suggested that too many such slips disfigure the specimen, and if there are not sufficient it cannot be retained in its place. Experience must be the best teacher. Some object to fastening the specimens to paper at all, others recommend gluing them down by the whole surface. Both these plans appear to us to be equally objectionable. If the specimens are loose, they are not only in danger of being broken or damaged, but of being misplaced and dissevered from the label which belongs to them. If wholly glued down, they cannot under many circumstances be removed from the paper, either to be transferred to other paper or for closer examination or comparison.

Each specimen having been mounted, the label which accompanies it should be fastened down beside it. This may be pasted. Finally, its generic and specific name should be written legibly at the lower *right*-hand corner. All the specimens belonging to one genus should then be collected together and placed between the folds of a sheet of paper,  $\frac{1}{2}$  inch wider and longer when folded than the half-sheets upon which the specimens are mounted. These "genera covers" may be of the same paper, or a smooth brown paper may be employed for the purpose. On the outside of the genera covers, at the lower *left*-hand corner, the name of the genus should be written in a good bold hand. The whole may be transferred to a deal box, the front of which is movable as well as the lid, being hinged to the bottom, so as to fall down and lie flat on the table. The lid may be so contrived as to hold the front in its place when closed. A deal box, 9 inches deep, 13 inches wide, and 20 inches long will hold a good collection, and if this ever should prove too small for the number of specimens obtained, a second box of the same dimensions will remedy the evil.

If it is considered desirable, a little camphor may be kept with the specimens, but the best preservative will be to look them all over, and thus allow the air to have access to them, once in every six months. With such precautions a collection may be preserved uninjured for years, provided always that it is kept in a *dry* place — not moderately, but *thoroughly* dry — or "mould" may injure irremediably what insects have spared.

A neat little collection of ferns, of smaller pretensions, and less claims to be regarded in a scientific light, may be arranged in a kind of album or scrap-book, with "guards" introduced by the binder sufficient to compensate for

the extra thickness caused by the insertion of the specimens. A tinted paper is often used in the manufacture of these books, which good taste may transform into a very interesting volume for the drawing-room table.

In collecting flowering plants it is essential that the plants should be collected when in flower, and, if possible, specimens in fruit should be collected and dried therewith. This will seldom be possible, but a later visit to the same spot may furnish fruiting specimens, which may be dried and placed with the flowering portion. Wherever the plant is small, or of moderate size, the whole of it, including the root, should be gathered, as this will make the specimens more valuable for reference and comparison, and give a better idea of the plant. If the seeds are being shed, they should be collected and placed in a small envelope, which may be fastened on the sheet beside the plant when it is mounted for the herbarium. Stems which are too thick to lie flat, especially such as are woody, should be pared down at the back with a sharp knife, care being taken not to interfere with the front or exposed portion of the specimen.

**CAUTION.**—Never omit to place a label with every specimen, stating where it was found, and the date of the month and year in which it was collected. A good collection in all other points is almost valueless if this caution is not regarded.

Never put dried plants away, or enclose them in a box, until *thoroughly* dry, or they will become mouldy. Take care to keep them, when dried, in a dry place.

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## PRESERVED FLOWERS.

The Preservation of Flowers, in their natural forms and colours, is an entirely new article of trade that has arisen in Germany. Erfurt, the city of nurserymen and florists, excels in manufacturing bouquets, wreaths, floral decorations for rooms, dinner tables, &c., made of such flowers. We are glad that we are enabled to lay before our young readers the *modus operandi*, by translating for them the following article from the "Deutsches Magazin für Garten und Blumenkunde."

First condition: Get a good quantity of fine sand, wash it till all the soluble particles are gone: you can test it by pouring the water off till it looks quite clear; when you are quite sure of the fact, pour the sand on stones or boards placed aslant, so that the water can run off, and let it get dry either by sun or fire—perfectly dry. Then pass the sand through a sieve, so that all dusty particles disappear from it, as there will be such, which washing and drying will not have removed. Then pass it through a coarse sieve, so as to get rid of too large grains. When that is done, your sand should be a mass of fine particles, of nearly equal size, as is, for instance, the so-called silver sand, used for writing. Keep the sand in a very dry, and, if possible, also in a warm place, that no vitalizing quality may remain in it.

Cut the flowers in a fully developed state, taking care that they are neither wet nor moist by dew, rain, &c. If you cannot obtain them in any other condition, then the following troublesome proceeding will render them dry. Take one or two flowers at a time, and put them into a glass, into which pour just enough water for the ends to stand in; the flower will then dry, and still suck up water enough not to fade.

Next, get a box or pot, or anything large enough to receive your flower or flowers; pour sand enough into it to enable them to stand by themselves, their stems imbedded in the sand. And now for that part of the work which calls upon your whole skill and your most delicate fingering. You have to fill up the box above the level of the flowers with sand, so that the flowers are completely imbedded in it. By means of a tube, or a funnel, or a sieve, you can do it in such a way that every particle of the flower rests in sand, and that your filling up shall not have crumpled or displaced the smallest petal. Of course, such a thing can be done only in a very slow way by a beginner.

Take care not to shake your box, lest the flower inside might get hurt. Carry it to a place both dry and warm, that all the moisture in the flower may pass into the sand, which, being porous, is in turn acted upon, and will let the moisture pass entirely out and get evaporated. Avoid, however, positive heat, or the colours of the flower will fade; whilst at too low a temperature, the moisture in the flower will not dry quickly enough, and so rot it. The warmth should, as a general thing, never exceed 100°.

When you are sure that your flowers have fully dried—a thing a very little practice in touching the box will teach you—the thing is done. Open the box, and by holding it in a slanting direction, let so much sand run out that you can lift the flower by the stem; by turning it upside down, shaking it gently, and, if necessary, blowing on it, all the sand will be removed, and you have the flower in its most perfect form—a little brittle, to be sure, in such a dry state as this, and therefore requiring careful handling; but a few days' exposure to the atmosphere will have imparted moisture enough to it to make it considerably less brittle.

You now see why we cannot do with the larger grains of sand: they would press unequally, and spoil the flower, which for ever retains all the marks of such pressure; nor with the dusty particles of the sand, because they, as well as the soluble particles which we have removed by washing, would adhere to the hairy and velvety parts of the flower, would never be got rid of, and would materially impair the original beauty.

The very newest feature about this art is, that the discovery how to preserve flowers in their natural state is quite an old affair, long forgotten, which has been restored on account of the increasing demand for bouquets.

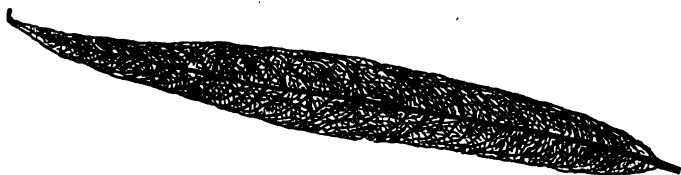
### SKELETON LEAVES AND PHANTOM BOUQUETS.

The art of preparing the fibrous skeletons of plants was understood and practised by the Chinese many centuries ago, and there are still to be found reasonably perfect specimens of these skeletonized leaves, generally painted



and decorated with Oriental designs and mottoes, according to the taste of that remarkable people. Whether they have ever advanced so far as the grouping or arranging of these delicate tissues into anything approaching a bouquet, we cannot say.

A recent English critic, in commenting on the progress of the art, avers that leaf bleaching has been known traditionally from time immemorial, in Europe and Asia, by those families in which botanical tastes have been hereditary. In Great Britain and on the Continent, among the quaint old curiosities to be found in the houses of retired sea captains, specimens of skeleton leaves are to be seen, covered with such pictures as only a Chinese artist could execute. The process was described in London publications of the seventeenth century, and was probably introduced into England from Italy during the reign of Elizabeth.



WILLOW LEAF.

#### ANATOMY OF A LEAF. GREEN AND DRIED LEAVES.

Fanciful, though expressive, is the appellation of "Phantom" or "Spiritual Flowers," which has been given to skeleton leaves by our cousins across the Atlantic.

The process through which the green and healthy leaves must pass into their skeleton state is not a pleasant one; for during the warm summer days, as the work goes slowly on, they become blackened and offensive, and often infested with insects; and yet these conditions are absolutely necessary to secure their final and perfect beauty. But when the work of corruption and decay is fully accomplished, there remains, after all, the beautifully faultless framework of leaves and flowers, ready to be rescued and purified. On the conduct of this portion of the work, and the subsequent cleansing and bleaching of the delicate tissues, the whole thing depends. The operator may consider herself eminently successful if she is able to present, as finished specimens, one-half the number of leaves originally gathered. Yet if a single bouquet of perfect phantoms, white and clear of blemishes, should result from the summer's labour, she will feel herself abundantly compensated for her pains, and may delight her eyes for many years to come with the unfading memory of the localities from which they may have been gathered, or of the friends who may have assisted in the employment.

The substance of these curious leaf-tissues is generally classed by botanists

under two distinct heads—the vascular, or veinwork, and the cellular, or intermediate green matter which fills up the interstices and gives coherence and solidity to the leaf. In undertaking to produce these skeleton leaves, the great problem is how best to destroy and remove the cellular and more perishable portion, while we preserve intact the network of veins or nerves by which the whole is kept in shape, and which perform the same office in the leaf structure as the nerves and veins within the human body.

The traveller who visits localities which have been celebrated in history or made immortal by the genius of great writers, desires to preserve some mementoes of his pilgrimage to scenes so hallowed. The most simple as well as the most usual keepsakes are sprays of leaves or flowers, pressed between the pages of a book, for future preservation in the album or the portfolio. But all green leaves, when thus pressed and dried, become very brittle, and will break upon the slightest attempt to fold or bend them. If placed in vases, they will soon curl and lose their colour, compelling their early dismissal from the parlour. Not so after passing through the skeletonizing process. They then become strong and flexible, may be folded or bent in any way desired, and, although appearing to be so frail and delicate, will, in most cases, bear a considerable amount of handling and pressure without tearing.

#### PREPARING THE LEAVES AND FLOWERS.

When spring has once more dressed both tree and shrub in their gorgeous liveries of green, the artist begins to look around her for the most suitable subjects for experiment. The influence of the new study on her mind becomes immediately apparent to herself. The trees, which have heretofore appeared to her as presenting an unbroken uniformity of foliage, now display their leaves to her sharpened observation with a wealth of capabilities before unknown to her, and she is surprised to learn how infinite a variety exists in the vegetable world—variety not only in size and outline, but in those other characteristics which are so important to her purpose, strength of fibre, and freedom from blemishes occasioned by the destructive ravages of insects. As observation is directed to the subject, so the mind becomes expanded under the influence of the new study. The surprising difference between the leaves now first becomes apparent. They are seen to be serrated or entire, ovate, acuminate, cordate, or irregular. The magnificent lustre of the Ivy and the Magnolia now, for the first time, attract attention, and secure for them a new admiration. As the season advances, she will be struck with the numerous changes to which the leaves are subject, before the chill winds of autumn strip them from the trees, thence depositing them in rustling piles upon the ground. As incidental to the study, the habits of a multitude of insect depredators will be noticed, affording new subjects for surprise, and fresh accessions of knowledge. Everywhere the wonders of the Divine Hand will be displayed under conditions to which she had been a stranger; and the mysteries of Nature, thus unfolded, will infinitely surpass all which these pages can be made to contain.

One of the first errors to be avoided is the placing in the macerating-

vessel many different sorts of leaves, without a knowledge of their chemical properties. For instance, those of the Oak, Chestnut, Walnut, and Birch contain so large a quantity of tannin as to render it almost impossible to macerate them in the usual way. If placed among other and more perishable leaves, the infusion of tannin thus created will act as a preservative, and entirely prevent their decomposition.



SYCAMORE LEAF.

Elms, Maples, Deutzias, Pears, Silver Poplars, and English Sycamores may be selected, but none but the firmest and most perfect leaves should be taken. These kinds may be placed together in open vessels and covered with soft water, and then set in a warm or sunny place in the open air. A broad weight may be placed on the top, so as to insure continued immersion. A newspaper, doubled and laid over the top of the leaves, will answer the same purpose as a weight, and is perhaps better, as it keeps its place, while the weight sometimes falls to the bottom of the vessel. The best vessel for the purpose is a common earthen jar with a wide mouth, the size to be proportioned to the quantity of leaves to be macerated.

At the end of six weeks the paper may be removed, and a few of the leaves carefully taken out for examination, and placed in a basin of clean warm water. To do this, the human hand is the best instrument; but, as many persons may object to thus dipping into what has now become an unpleasant mass of vegetable decomposition, a broad wooden spoon may be substituted. Then, taking a leaf between the thumb and finger, immerse the hand in the warm water, and press and rub the leaf either gently or firmly, according to the strength of its texture. This rubbing process will remove the loose green matter from the surface, and expose to view the fibrous network of the leaf. With those which are strongest, especially the Magnolias, a brush will be needed to effectually clean them—a soft tooth-

brush will answer best; but in using a brush, the leaf should be laid in the palm of the hand, on a plate, or on any other surface equally flat and smooth.

This constitutes the first washing, and a few of the leaves will now be found perfectly clear. But to some of them thus washed and but partially cleared, further care must be extended. It will, therefore, be necessary to have at hand a second vessel of water similar to the first, in which all such imperfectly skeletonized leaves may be placed, where they must remain until finished, which, with all but the Magnolias, will probably be two or three weeks longer.

We may suppose that the artist has made a beginning with the leaves already mentioned in this chapter. On taking them out of the macerating-vessel, and washing them as directed, she will find the Deutzias and Silver Poplars perfectly clean, and they should then be placed in a basin of clean water, until all the contents of the macerating-jar have been examined. A few of the Norway Maples will also be found perfectly prepared; but the majority of all contained in the jar will still be only partially so.

In the latter condition will be found the Sycamores, the Silver Maples, the Elms, and the Pears. These must, consequently, be deposited in the second vessel, as before mentioned, to undergo still further maceration. The Magnolias will require another two or three months' soaking before the outer cuticle will become soft enough to remove; but, if more convenient, they may be placed in the same vessel with those last named. After covering these half-cleaned leaves with water, all in different stages of progress, they should be left in the same warm sunny place to be finished. We may here remark, for the comfort of the learner who has persevered thus far in an operation which will be discovered to be decidedly unpleasant to her olfactory organs, that the most offensive portion of the labour is over, at least with this particular set of leaves, as, after having received their first washing, they part with most of the disagreeable odours which have so long pervaded the air in the vicinity of the macerating-jar.

The clear and perfect leaves which were deposited in the clean water, awaiting a leisure hour to give them further attention, may now be deprived of their moisture by carefully pressing them between the folds of a soft towel until they are perfectly dry. On no account let them be laid on a table, or other hard surface, while in a wet state, as in drying they will adhere to it so closely as to tear in the effort to remove them. The Norway Maple, being extremely delicate, will adhere, while wet, even to the hand, and great care must be exercised in removing its leaves to avoid tearing. It will be noticed that many of the leaves will lose their stems in passing through the process;



NORWAY MAPLE.

but the mode by which this deficiency is to be supplied will be explained in its proper place hereafter. When dried, the leaves may be placed in boxes, ready for bleaching when the assortment has been completed.

**IVY.**—These much-admired leaves may be gathered at any time during the year, always selecting those a year old in preference to the younger growth of the present season. The Ivy leaf, like some others, has a tough outer cuticle on each side, between which the fibrous skeleton is concealed, the intermediate space being filled with the green cellular matter common to all leaves. During the process of maceration this green substance is dissolved, though the outer skin remains whole and entire. When taken from the macerating-vessel and laid in the clean water for cleansing, this skin will present the appearance of a bladder filled with green water. By puncturing, or gently tearing this skin on one or both sides of the leaf, the water will escape, and the perfect skeleton will float out, ready for rinsing and drying. Four or five weeks will be sufficient to allow for their preparation, although some varieties require a few weeks longer.



IVY LEAF.



HOLLY LEAF.

**HOLLY.**—This leaf is quite difficult to clear properly, owing to the tough outer cuticle adhering so tenaciously to the thorns on the edges as to tax the ingenuity and patience of the operator in removing the one without breaking off the other. For this reason most amateurs give up after the first attempt, and content themselves with more beautiful and less troublesome subjects. About three months is the time necessary for skeletonizing them, and, being evergreens, they may be gathered at any time.

#### BLEACHING THE LEAVES AND SEED-VESSELS.

The next process, and one of great importance, is that of bleaching the leaves, flowers, and seed-vessels. It is an operation which requires the greatest care, as upon the perfect whiteness of all the component parts of a bouquet its beauty will depend. No matter how perfectly the leaves and seed-vessels may have been skeletonized, if they are permitted to retain any shade of their original yellow, they are deficient in beauty, at least to the eye of the connoisseur.

The first step in this part of the process is to procure proper bleaching materials. Many persons are entirely successful in the use of chloride of lime, while others prefer different solutions of chloride of soda. The former should be prepared for use in the following manner: Take a half-pound of strong chloride of lime, and place it in an earthen or other pitcher. Add three pints of soft cold water, and stir carefully with an iron spoon, pressing so as to mash the lumps well against the sides of the vessel. Keep it covered, and allow it to stand in a cool place until the lime has precipitated upon the bottom of the pitcher, which will be done in about an hour, except a small portion that may remain floating on the surface. This should be removed with a spoon or skimmer, after which the clear liquid should be poured off into a bottle, then corked up tightly, and kept in a cool place.

When ready to commence leaf bleaching, take a glass jar, such as is used for pickles or preserves, having a mouth wide enough to admit the largest leaf. First, select those intended to be whitened, but be careful not to place leaves and seed-vessels in the same jar; then with soft clear water cover the leaves in the jar, and add the bleaching solution in the proportion of two table-spoons full to a pint of water. The jar should be covered tightly, and set in a warm place. When coarse seed-vessels and stems are to be bleached, this proportion of the chloride of lime may be doubled, but the delicate leaves, and especially the ferns, will be destroyed if the solution be made too strong.

The preparation of chloride of soda acts gently and more slowly, and being free from the caustic properties of the lime, is less likely to attack and corrode the delicate framework of the leaves. The quantity of this solution to be added to water must be double that of the first-named preparation. It will whiten the flowers, ferns, and more tender of the seed-vessels, but it is not strong enough to act on those which are coarser and more ligneous. There is great difficulty, however, in procuring this preparation of the required freshness and strength, as its bleaching properties depend entirely on the amount of chlorine contained in it; and this being a very volatile gas, it is readily lost by keeping a length of time, even when carefully corked and sealed.

In putting the delicate leaves into the jar, care should be taken to arrange them beforehand with the stems all pointing the same way, that is, downward in the jar. The reason for this exists in the fact that the bleaching commences first at the bottom of the vessel; and as the thick stems and mid-ribs require more time to whiten them than the lace-like portion of the leaves, it insures their being satisfactorily finished in a short time. A jar of leaves will usually require from six to twelve hours for bleaching; but as the jar is of glass, an outside inspection will enable the operator to judge of the degree of whiteness, without raising the lid until it may be time to remove them.

When they are discovered to be entirely white, they must be taken carefully out with the hand, and laid in a basin of clean warm water. If suffered to remain too long in the jar, they will become too tender for removal. They may then be thoroughly washed from the chlorine, by changing them

several times in fresh water, after which they will be ready for their final drying. This is accomplished as before, by laying them between the folds of a soft towel; while the more delicate ones, which are apt to curl in drying, should now be laid within the leaves of a book, until entirely dry. The washing is a very important part of the operation, as, if not thoroughly done, the bouquet will soon become yellow and otherwise discoloured, and thus in the end lose its attractiveness and beauty as a drawing-room ornament.

As before stated, it will be advisable to keep the seed-vessels separate from the leaves, and to put them in different bleaching-jars. If placed promiscuously in the same jar, the seed-vessels will become so entangled in the fine network of the leaves, that in the attempt to remove them the latter will be seriously injured. Seed-vessels and flowers require the same treatment in bleaching and washing, only remembering that the coarser seed-vessels may need a stronger infusion of the bleaching preparation. A little experience will soon inform the operator as to the exact quantity required for all kinds of leaves and seed-vessels.

The bleaching of the ferns will need some special directions. Many who have succeeded admirably with leaves, have invariably failed in their attempts at preparing these graceful sprays. As they constitute the most brilliant embellishment which can be introduced into a bouquet, such failures are especially mortifying. But, by closely following these simple directions, there will be no difficulty in producing entire sprays of white fern ready to be arranged with other materials for the bouquet.

Having gathered ferns of different varieties during their season of maturity—which is when the seeds are to be found on the back of the leaves—they should be preserved by pressing them between the leaves of a book, there to remain until required for bleaching. When ready for that process, let the operator select such as she desires, and place them carefully in a jar, causing them to curl around the sides rather than with stems downward, in order to avoid breaking the dry and brittle leaves. The smaller separate leaflets may occupy the space in the centre of the jar. Then fill up the jar with warm water, leaving room for the bleaching solution, in the proportion of half a tea-cup full to a pint of water. Cover the jar tightly, and set it in a very warm place. After twenty-four hours, gently pour off the liquid, and replace with fresh, mixed as before. They should remain in the second water about forty-eight hours, when this, in like manner, will require to be changed. In about three or four days the ferns will begin to whiten at the edges, and this whiteness will gradually extend itself over the entire surface of the spray, changing it from a dark brownish green to the spotless purity of a snow-flake. Each one must be carefully taken out as soon as it is seen to be entirely white, without waiting for the whole contents of the jar to be finished.

In the bleaching of a large spray, it sometimes happens that its extremity, perhaps half of the entire length, will become perfectly white, while dark spots remain on the upper or stem end. In such cases it will be safest to take out the branch, and, laying it in a basin of water, cut off the white portion, and return the unfinished remainder to the jar. Afterwards, when

both are ready for the bouquet, the two portions can be neatly united with gum arabic. The process of changing the water will have to be repeated four or five times during the operation of bleaching the same lot of ferns, and the time required to whiten them completely will extend over a period of from one to two weeks. The time depends on the varieties of ferns which may be used, as there is a wide difference in their susceptibilities, some being wholly unfitted for this purpose.

When the sprays are found to be entirely white, they must be taken from the jar with the fingers, always holding them by the stem, and laid in a broad basin of clean warm water, where they should be allowed to remain for several hours. They may be thoroughly rinsed by changing the water several times, but they will not bear handling in the same manner as will the skeleton leaves. When ready to be dried, take one spray by the stem and lay it in a broad dish or basin of water, allowing it to float on the surface; then pass under it a sheet of unsized white paper, and in this way lift it out of the water. The spray will cling to the paper, and assume its natural shape. Should any of the small side leaves become crooked or overlapped, they may be readily straightened by using the point of a pin to spread them out in proper shape upon the paper. To get rid of the superfluous moisture contained in the latter, lay the sheet first on a soft towel for a few minutes. The towel will absorb most of the excess of water. After that, it must be laid between two other sheets of the same unsized white paper, and pressed in a book.

When all the sprays have been thus removed and committed to the keeping of the book, a heavy weight should be placed on it, in order to insure their drying smoothly. If desirable, the drying may be accelerated by changing them, after a day or two, into another book, or into new portions of the first. When entirely dry, if some of the thinner varieties are found to adhere to the paper, they may be loosened by pressing the thumb-nail on the under side of the paper. It is better, however, even after they are thoroughly pressed and dry, to keep them shut up in a book until wanted for the bouquet, as they have a tendency to curl when exposed to the air.

#### ARRANGING THE BOUQUETS.

Having thus completed the different processes required for the production of the Phantom Bouquet, with boxes well filled with a complete assortment of white and perfect leaves, seed-vessels, and flowers, the artist comes now to the final operation of combining them into tasteful groups or bouquets, under glass cases or shades. These will be found indispensable to the permanent preservation of what otherwise would be a fleeting beauty. We may suppose that such a shade, of perfectly white glass, with stand to receive it, has been provided.

The first thing required will be to form a cushion, either of blue or black velvet, these colours being found most effectively to contrast with the white group to be placed upon them. The stand, of walnut or enamel, should have a groove upon its surface, inside of the edge, into which the shade will drop freely. Having cut the velvet of the proper size and shape,



allowing for the necessary stuffing, the cushion may be prepared by laying raw or carded cotton on the bottom of the stand, raising it rather higher in the centre, and temporarily securing the circular piece of velvet by means of four tacks on the four opposite sides, thus equally dividing the whole into four parts; the edge may then be firmly and neatly fastened round by gluing, and pressing with a blunt-pointed instrument, until it acquires a proper shape, when the tacks may be removed.

The operator will next require some white gum arabic, dissolved in water so as to be very thick; and the first step preparatory to the arrangement will be that of supplying stems to such of the leaves as may have lost them in the process of maceration. For this purpose some operators use the old stems of other plants, which have been bleached expressly for use as substitutes, while others prefer white wire covered with paper; but, after trial of both these expedients, we give the preference to something more simple, and which possesses the additional advantage of being always within reach, as well as being less liable to become discoloured by age.

Take the common white crochet spool cotton and coarse sizes of sewing thread, to be found in every lady's work-basket, and stiffen them by wetting well with gum arabic. When dry and stiff, stems of the required length can be prepared by gumming neatly to the under side of the leaf, allowing the new stem to extend some distance along the central rib or backbone of the leaf. If done neatly it will be difficult to detect the substitute. These stems can be left about two inches long, which will be sufficient to admit of joining to form branches, &c., and can of course be cut off if found to be too long. Care should be taken to regulate the size of the thread used by the requirements of the leaf; a large leaf, with thick mid-rib, calling for a thick and substantial stem, while a delicate leaf, like the Ivy, needs a finer one.

The Ivy leaf should always, if possible, be grouped so as to form wreaths, as nearly as may be in accordance with its natural habit of growth, the smaller leaves being placed at the end of the spray.

Having prepared the stems, the grouping may be gracefully done (if the bouquet is to be placed under a low broad shade) by fastening the stems securely with a little of the thick gum, into a hole made in the centre of the cushion, in such a way as to allow them to bend over slightly, using the large leaves of the *Magnolia* species as a beginning, and filling in with smaller leaves of other varieties. When a taller shade is to be used, this plan will not answer so well, as it is desirable to bring the group higher up, so as to fill the shade. A piece of white silk-wrapped bonnet wire will answer as a foundation, the upper end being covered with a small piece of white wax.

The leaves may then be grouped around the wire, and tied with white sewing cotton, placing the smaller or medium-sized leaves at the top, and adding the larger ones for the middle of the bouquet. These last will then droop over gracefully when the shade is placed over them, and the seed-vessels and ferns, which are more effective when arranged in groups on the velvet cushion, will be seen plainly through the lace-like curtain. When

the central stem of wire has been covered about two-thirds of its length, gum the lower end and insert it firmly into the base, having punched an opening through the cushion, reaching down into the wood itself; this will hold it entirely firm. One of the white seed-vessels of the Balsam Apple forms an effective vase-like receptacle, and when used, the wire may be passed through it, before being gummed, into the stand. The group thus fastened should reach, in the centre, to within three inches of the top of the glass, the leaves of course rising higher as they curve upward from the stem. There should now be prepared a few choice sprays of leaves and seed-vessels, or perhaps a group of ferns, and fastened into the cavity thus created, so as to crown the whole and give it an artistic finish.

On no account should large and heavy seed-vessels or opaque objects be placed near the top of the bunch. We have seen many specimens made by beginners, in which *Stramonium* burrs were conspicuous among delicate leaves at the summit of the bouquet. Of course this manner of arranging them detracts considerably from the light and airy appearance of the whole; and as the burrs soon become discoloured, the little original beauty of such productions will soon be gone, the coarse brown burrs becoming an unsightly blemish, which nothing but their removal from the bouquet can repair.

As a general rule, large sprays of fern look better and wear better when placed near the bottom, or directly on the velvet, as they are disposed to curl, especially if placed in the bouquet before they are perfectly dry. All delicate seed-vessels, and the beautiful flowers of the *Hydrangea*, show to great advantage on the raised cushion, while the large leaves occupy the centre of the group. When finished, a piece of chenille around the outer base of the shade will serve the double purpose of ornament and use, as a protection from dust. On no account should the shade be fastened down, as the contraction and expansion caused by changes of temperature will certainly crack the glass if it be glued fast.

Another and newer style is the black velvet cross, with cushion of the same colour round the base, with wreaths or vines of small leaves—the smallest to be had—entwined around it. The effect of this arrangement is admirable, as it shows with great advantage the beautiful leaves of the *Ivy*, the *Deutzia*, the *Wisteria*, the *Bignonia*, and the *Silver Poplar*, as they are displayed upon the dark-coloured background. A wooden cross, of the height and proportions required, covered neatly with velvet, should be firmly glued into the wooden base, and the white vines formed of the stiffened crochet cotton—the little stems which are to connect the leaves with the vine being made of the finer thread. The exercise of a nice taste, with some little mechanical dexterity, are all that will be required to produce a very happy effect. A few leaves, ferns, and small seed-vessels, grouped around the base, complete the arrangement.

## WORK.

From a very early period the skill of Englishwomen with the needle made their work known and highly valued by other nations. English embroidery, consistently enough called *Opus Anglicanum*, won from Pope Innocent IV., in 1246, the following exclamation: "Truly, England is our garden of delight; in sooth, it is a well inexhaustible; and where there is great abundance, from thence much may be extracted." And his Holiness dispatched official letters to nearly all the abbots of the Cistercian order in England, and urged them to procure for his choir, for nothing if they could accomplish it, or at any sum if they must purchase them, "things so estimable." They were, of course, embroidered church vestments.

Our women still possess much graceful skill with the needle, though old people occasionally express a fear lest that feminine accomplishment should be neglected in the more out-of-door life of the present generation. We think they need not fear it, there are so many dull winter days and long fire-side evenings in which the needle is the chief resource of the English girl. In our HOME BOOK we offer her some little aid in the use of the needle, by presenting her with new patterns from the work-room of the best needle-woman of our accomplished age, and with some few less pretentious suggestions by friends. The patterns, by Mrs. Mee, are quite new, and, being furnished expressly for the HOME BOOK, will be found nowhere else.

### PINCUSHIONS FOR THE TOILETTE.

No. 1.—Make a round pincushion, with a hollow in the middle of it large enough to hold a small tumbler. Paste a firm piece of cardboard at the bottom of it. Then make a cover of muslin over pink silk, leaving a hole just over the hollow in the middle of the pincushion for a tiny glass, which you must buy to fit it, and which, when the pincushion is on the toilette table, must be filled with a bouquet of delicate flowers. A lace frill should be



sewn round the edge of the pincushion, to hang to the bottom of it.

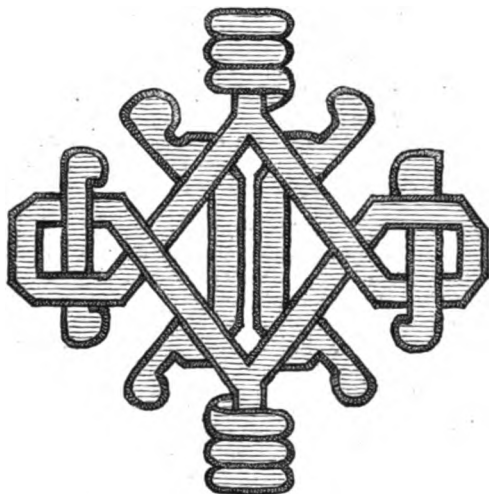
No. 2.—A small square deal box, lined with pink silk, and covered externally with the same. The inside lining should be quilted on flannel; the outside covered first with muslin, and then with a deep lace frill. Make a pincushion on the lid, cover it with pink silk and spotted muslin, and edge it all round with pink silk ribbon rucheing.

These pincushion boxes are very convenient on the toilette table.

### PATTERN FOR A SOFA CUSHION IN APPLIQUE.

Make a pillow-case of coarse brown linen, about  $\frac{3}{4}$ -yard square; stuff it well with the light wool proper for cushions, which you can get at any fancy shop, and take care to make it firm and of good shape. Take a piece of rich blue silk or cloth, and cut it the size of the two sides of your cushion, allowing for a turning-in at the edges.

Then draw the pattern, cut the size you require it to be (about 6 inches each way would be a good proportion), on silver paper. Tack a square piece of white silk or cashmere, the size of the pattern, smoothly on the centre of one piece of your blue silk; tack over it the silver paper pattern, and run the outline carefully in white sewing silk, taking care that your needle goes through *both* the pieces of silk. When this is done, take some narrow scarlet silk braid; draw the end of it through both silks by



means of a stout needle and thread attached to it, and then braid your pattern carefully and neatly round. When it is done, pull away the silver paper, which will draw easily from under the braid, and cut off the silk which lies beyond the edges of the braid, closely, with a sharp pair of scissors. Repeat the same appliqué pattern at each corner of the blue silk square, or more frequently if you wish to cover your cushion entirely.

The same pattern may be embroidered in silks and edged with gold cord, if our young workers please.

### CHURCH EMBROIDERY.

Such of my young friends as are happy enough to be permitted to devote some of their leisure hours to the adornment of the house of God, and to take part in the working of Altar-cloths or carpets, pulpit-cushions, fald-stools, &c., may be glad of a few hints as to the manual part of the work. Nothing else is needed, if they procure designs of an appropriate character from some good ecclesiastical architect or designer, and work under his direction; and

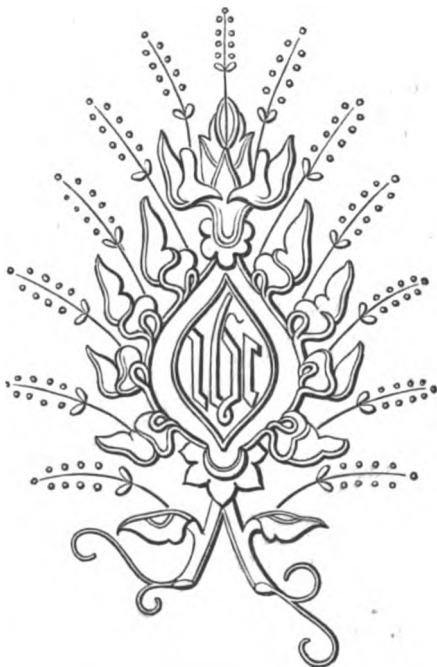
whenever this is possible they should do so, and thus secure correctness and uniformity of design. To those who are so unfortunate as to be left to their own devices, it may be as well to observe that Church work should be considered as a thing apart from the ordinary work suitable to drawing-rooms, and that Berlin patterns are especially to be avoided.

Some years ago it was rather the fashion amongst young ladies to undertake patchwork carpets or pede-cloths and cushions for a Church, in the same way as they were wont to furnish a friend's drawing-room with a set of chairs, or a carpet, or rug, or ottoman—by distributing squares to be worked amongst themselves, and to be sewn together afterwards; and the result, perhaps, was a set of kneeling-cushions, for the most part consisting of branches of flowers worked from Berlin patterns, very pretty for sofa-cushions, but quite out of place in a Church. Indeed, I have seen patterns designed expressly for Altar-chairs by a "Berlin house" which were utterly unsuitable: a bouquet of flowers, or a cornucopia, with a gothic-looking border, into which a Cross, wreathed round with flowers, or a Chalice was introduced, for instance, which impressed the spectator with a painful idea of irreverence.

Very good and appropriate designs are now prepared for chairs, cushions, and carpets from the patterns of encaustic tiles, &c.; and these should be adopted when the work is to be done in cross-stitch on canvas. For Altar-cloths, pulpit hangings, &c., embroidery on velvet or cloth is to be preferred; and I will endeavour to describe the manner of working the stitches employed in this mediæval embroidery. It is by no means difficult, but every stitch should be perfectly executed: the materials used must be of the best kind, and most carefully and delicately handled, so as not to become soiled in working them. In very large pieces of work, and where velvet is the material to be worked upon, it is necessary to do the embroidery upon linen, and transfer it when finished to the richer material which is to be its foundation. A coarse kind of unbleached linen is sold for the purpose: it must be pure flaxen cloth with no mixture of cotton in it, or it will not work smoothly, and the "stuff" will injure the silk. It must be thoroughly washed or rather boiled in soap and water two or three times, and left to soak in cold rain-water afterwards, to take all the "dress" out of it; and then very smoothly and carefully ironed. It should always be used doubled, and must be worked in a frame, and very tightly stretched in this. The best plan is to sew a piece of cord or string to the two sides of the work after sewing the top and bottom (doubled) to the two bars of the frame, and to sew over this to the holes in the sides of the frame with fine packthread, taking care that the linen is doubled quite evenly by the thread. This will allow the packthread to be drawn tight enough to stretch the linen sufficiently, without danger of its fraying out. Great attention must be paid to the framing of the work; it cannot be embroidered nicely if it is not stretched very evenly and tightly. When this is done, the paper pattern of the design should be laid under it, and the outlines traced upon the linen accurately, and corrected afterwards by it. A perfect outline must be obtained upon the linen; it cannot be safely altered with the needle.

Floss silk is generally used for embroidering the flowers and leaves, and for the body of the design. It ought to be very good of its kind, as well as

bright in colour; and if shaded, the shades must be carefully graduated so as to tone nicely down into one another; but very much of the mediæval embroidery is not shaded, and when the pattern is conventional the colours are often conventional too, and there is no attempt to copy the tints of the natural flower. Filo-selle, twisted or netting silk, and fine silk cord are also used in the work, and fine sewing silk for sewing down the cord or "gold passing" laid on. Ordinary needles will do for the sewing silk, of course; the other silks and the gold will require embroidery or chenille needles, like carpet needles, with a fine point. The stitch mostly employed in embroidering flowers and leaves, &c., is that known as "long and short stitch:" the stitches are of different lengths. As a rule, the work should always be begun in the centre




ALTAR CLOTH.


of the pattern: for instance, a leaf would be commenced in this manner:



and the stitches should be put close together, and worked "over" and "over," the under part of the leaf having as much silk as the upper part, keeping a perfect outline all along. This is necessary, in order to keep the leaf from ravelling out when the work is cut out. The next row or rows of stitches have to be worked a little lower, and to cross the first row in a measure, being stroked up between them without splitting any of those first worked. They may be worked "backwards and forwards," or "over and over," as seems most convenient. The great point is, that the linen should be completely covered, and that the stitches should all lie smoothly, dovetailed into one another, and if shaded, that the shades should amalgamate well and tone down into one another. Sometimes the leaf is finished by a row of short stitches half crossing one another for the centre; but the usual

plan is to make the stem and veins of the leaf, by sewing gold passing or silk cord upon the leaf, with sewing silk of the same colour, or with one which will contrast well with the colour of the stem. If this is to be twisted, two or three strands of the gold or silk are knotted together and passed through the linen, and fastened securely at the back, and then held together in the hand, stitched down at intervals, and passed through the linen again at the top of the leaf. If laid flat, it must be used double, and care must be taken that the two strands do not become twisted over each other in sewing them down. The petals of flowers must always be begun as the leaves in the centre, as in this figure:  and worked up to the edge. The second petal must be commenced in the centre, and worked back to join the first: this is useful in order to secure the right degree of sloping in the stitches, which should follow the lines or veins of the natural flower. Other rows interlace the first row, as in the leaf described above.

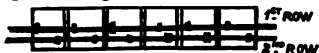
The flowers are often enriched by patterns worked upon the embroidery in a succession of short stitches of another colour or shade, or by tying down gold, silk, or filoselle upon them: the centre or separate petals, perhaps, would have an edging of gold or of black silk sewn round them, so as to preserve the outline exactly, as by the black line often used by illuminators to finish their designs. Spangles are sometimes used to enrich the work, but these are generally put on, after the embroidery is done and transferred to the velvet, or cloth, which is to be its foundation.

When gold is used it must always be of the best kind: no inferior material should be admitted into Church work; it will tarnish and turn black in the course of time, so as completely to destroy the effect of the whole. It is much better to use thick twisted silk, such as is made use of for netting gentlemen's purses, or "crochet silk," instead of gold, when the costly material cannot be procured. It is sewn on the linen flatly, or raised by means of string or whipcord to the required height. When large surfaces are to be covered entirely with gold, this is generally laid on in rows of double thread, tied down at intervals with silk of another colour, which forms a chequer pattern, the rows of gold being laid as closely as possible together, so as to give the effect of compact metal-work, the stitches coming between each other as in the figure:  and being worked as evenly as possible. Red or green silk over gold has a very rich effect done thus; and sometimes the lines are waved instead of straight, and tied down in diamonds or other diaper patterns, to enhance its beauty still more. Great care must be taken to keep the stitches quite regular, and to tie the gold down firmly, especially at the beginning and end of the parallel rows, when they have to be bent back and firmly sewed, to keep them in the right position, and to preserve the correct outline intact.

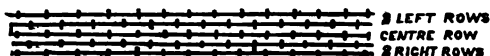
When the gold is to be raised, this must be done by working it over rows of string or whipcord, sewn firmly down on the linen first. Cotton wool was often used to raise letters or stalks, but was found to injure the gold, and pieces of linen are now generally employed to raise surfaces which are to be rounded: these are cut out of the right shape, and laid one upon

another, the centre of the design, perhaps, having four or five folds of double linen, and the edges only one.

String is sometimes tacked across these at short distances, as shown in the fig.:



and the gold is worked over this, tying it down underneath each bar of string, all along the first row (which should always be in the centre of the stem or design, whatever it may be), and above the bars, in the second row of gold. This forms a kind of basket-work, and the play of light and shade given by the raised and depressed rows, has a very beautiful effect. The rows of gold must be laid on very closely. For a very thick stem, such as a flower-stalk from which flowers and leaves are branching off, one thick piece of cord or string is sometimes used, and this must be very firmly and exactly sewn on to the linen first. Supposing three or five rows of gold, of three or four strands each, to be necessary to cover this cord, knot the strands together, and pass them through the linen at one end of the stalk, sewing them firmly to it here. Hold the strands in the left hand, so as to keep the line quite straight, and work the centre row first, putting the needle with which the sewing silk is stitched over the gold, underneath, not through the cord. The stitches are to be made very evenly at short distances, as described for the flat gold. At the top of the stalk, the gold should be passed through the linen to keep the line exact, or bent back firmly, as may be found best. The succeeding rows are more troublesome to work, because the stitches must be passed through the cord:

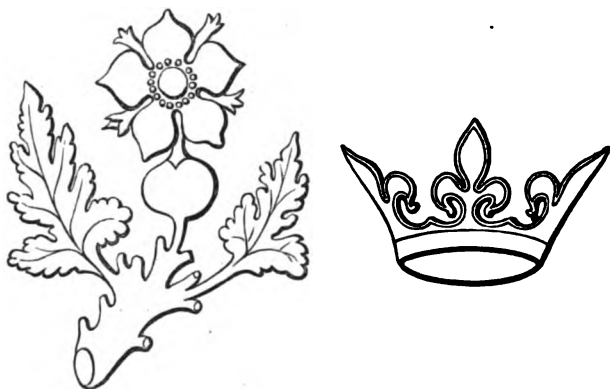


In working the two rows to the left, the needle should be brought up to the left and put down to the right, as closely as possible to the centre row, slanting a little underneath this, so as to draw the next row of gold as close as possible to the first. When the first left row is worked, the first right row should be done, and in this case the needle must be brought up on the right side of the stem, and put down on the left side, underneath the centre row of gold. The two outer rows then are worked in the same way. The stem must be as compact and solid as possible, and all the rows of gold laid on in parallel lines perfectly straight. Great care must be taken to touch the gold as little as possible, especially if the worker has a hot hand; and as soon as any portion of the work, whether it be gold or embroidery, is finished, it should have tissue paper tacked down over it, to keep the gold from tarnishing and the silk from becoming soiled or frayed, so as to destroy the freshness of the work when finished.

When the embroidery is completed, the back of the linen should be gummed, or thin whitey-brown paper may be pasted over it with a coat of thin hot paste, and put at a little distance from the fire to dry quickly. As soon as it is dry, the sprig of flowers and leaves may be cut out, leaving a little edge of linen (about the eighth of an inch) all round them, and they are transferred to the rich material which they are to ornament. This must



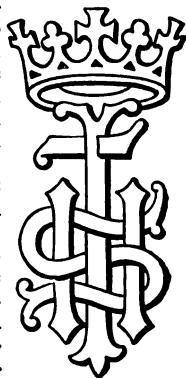
be placed upon linen stretched out in a frame and tacked smoothly upon it, and the embroidered flowers or figures must be correctly arranged, according to the design, and tacked down in their places. Then several strands of "gold passing" or of silk are to be stitched round every part, so as entirely to conceal the linen edges, and to bind the embroidery firmly to the velvet foundation. These are laid on exactly in the same manner as already described for laying gold on the linen. Care must be taken to stitch them down at regular intervals, and to use a sufficient thickness of gold or silk to conceal the edges, holding all the strands required, together in the left hand, and fastening them down at once. Scrolls and spangles are often added to enrich the work after the embroidery is fastened on, and these are laid on upon the velvet in the same way. This finishing of the work should, of course, be done by an experienced worker, or under competent direction.



My younger friends may be glad of a few suggestions for small articles of Church work, such as they may venture to attempt alone — alms-bags, sermon-cases, or book-markers. The former should be embroidered on a thick corded silk sold for the purpose. I believe it is called *ribbed silk*: it is a costly material, but no other answers equally well, and it wears much better than satin or velvet.

A good design is easily to be obtained for alms-bags or sermon-cases from encaustic tiles, or the crosses, monograms, and triangles provided for illumination will answer very well. The design should be cut out in thin cardboard or parchment (the former is best, because the needles pass through it more easily than through the parchment) and tacked or gummed on to the silk, previously stretched in a frame. The usual mode of covering the cardboard is by working over it long or short stitches in parallel lines, laid on quite smoothly and regularly, like the lines of an engraving, in floss or twisted silk, or gold passing, for a foundation; and embroidering upon this, if the surface is large, cross bars or a diaper or chequer *pattern*, in silk of

another colour, tacked down at intervals with sewing silk; and edging the whole design with gold passing or cord. Book-markers should be done in the same way, the material being of the same kind as that used for alms-bags and sermon-cases, in ribbon known by drapers as *Petersham ribbon* — a stout corded ribbon, such as is frequently used for waist-ribbons. This may be obtained of good ecclesiastical colours — violet, crimson, blue, or green; and for the large Church Prayer Books, Bibles, and Altar Books, nothing can be so suitable as markers cut of a sufficient length to hang down below the book with two embroidered ends. Those which are ornamented with beads upon perforated cardboard are not suited for Service Books. If embroidered or illuminated vellum designs be not used, solid crosses cut out of thin cardboard and built up into shape are far preferable to these, or to designs worked upon it in cross-stitch. The length and width of the ribbon must depend upon the size of the books in which the markers are to be used. The design should be embroidered at a little distance from each end, so as to allow of the ends turning back and covering the back of the worked part, and the doubled part must be finished with a fringe either of gold, gold silk, or silk of the colour of the book-marker. Monograms, such as the engraving, the doubled triangle, the cross and crown of thorns, the jewelled cross, the fleur-de-lis, &c., are all appropriate, and the designs should be cut out in cardboard and worked in the same manner as directed for the alms-bags: the design, of course, being smaller, gives less room for enrichment, but the same stitches are employed, and the various colours laid upon one another, and edged with gold, give a very beautiful effect to the work. It must be executed most carefully and exactly, and the outline of the design accurately preserved. Suitable colours must be used, to blend or contrast well, as in illumination, and no inferior material, or imitation gold, should be made use of.



### EMBROIDERY IN SPANGLES AND CANNETILLE.

*Bullion*, which is a large gold wire of which officers' epaulettes are made, *frisure*, which is a smaller bullion, *cliquant*, which is a flat gold ribbon, are all classed under the denomination of *cannetille*. Leaf-shaped spangles are called *lamé*.

Stretch the velvet, cloth, or silk which you intend to embroider in a frame, and tack over it your pattern, which must be nicely drawn on silver paper. Suppose your pattern is a wreath of grape-vine leaves and grapes: you must put bullion on for the centre stem. This is done by running a needle and thread through the tube, and fastening it with an occasional (strongly sewn) stitch or two. Take the smaller bullion or *frisure* for the outlines of the leaves and tendrils, fastening it on in the same manner as the large bullion; vein the leaves with fine gold thread. Make your grapes of *large*

spangles and purple or green glass beads, thus: Pass your needle through the velvet from underneath, take a spangle on it, then take a purple bead on it; pass your needle again through the spangle, and back through the velvet. Then begin another grape in the same way, and fasten carefully off when your silk is used up.

A wreath of grapes and holly (the holly berries of red beads) round the edge of a table-cover would look very nice. The cover should be of dark cloth, and edged with gold cord all round.

### EMBROIDERY IN LAME OF VELVET AND GOLD.

Fix your material in a frame. Tack over it your pattern drawn on silver paper, or sketch it lightly on the surface of the cloth or silk. Work your stems and tendrils in *frisure*; your berries or little flowers in spangles.

You can purchase stamped velvet leaves, which you must fasten with strong gum to your velvet or silk, and then keep them firm by veining them with gold thread.

Petals of flowers may be cut out of coloured velvet, and arranged on the cloth or velvet, if the young needlewoman has sufficient taste to form a flower.

The work may be done entirely of *cachemire* and gold on cloth, if a more expensive material is beyond the worker's means.

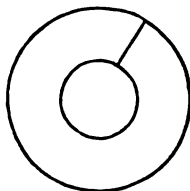
### EMBROIDERY IN FEATHERS.

Stretch your material for the ground on a frame. Cover the back or under side of your feathers with thin gum, to keep the tiny plumage together, and let them dry. Take a sharp pair of scissors, and cut the feathers into the shape of the petals you require; lay them separately on your pattern, and tack them firmly on the silk or cloth with sewing silk of the same colour. Work stems, tendrils, and centres with silk of the colour required. Of course you must arrange your petals or leaves according to your pattern, and be sure to use a *fine* needle and silk.

Any white feathers dyed do for this work.

### SOFT BALLS.

Cut two rounds or circles of firm pasteboard or cardboard; then cut a round out in the centre of each exactly alike, and *cut through* the two sides of the rings so formed. Example: Select wool of brilliant colours, and wind it closely over the cardboard ring till the centre hole is quite filled up. Then take a very sharp pair of scissors, and cut through the wool the whole way round the edge of the ring. Insert a strong piece of string between the cardboard rings, and tie the wool with it as tightly as you can draw the string. Then slip out the paper rings by pulling them apart at the cut; clip your ball evenly all over, and it will be the nicest present you can make to your baby brother or sister, who may throw it about with perfect impunity.



## MODERN POINT LACE.

Needle-wrought lace has always held a place in art, as indeed it ought, both on account of the taste and skill required to bring it at all near perfection. Of late years it has happily, we think, superseded the trashy fancy work of twenty years ago, and the products of our young ladies' fingers promise to become heirlooms in families, as the lace of the nuns and mediæval lace-workers did. Instruction in it is here given by a lady whose own work found a place in the Exhibition of 1873—a relative of the distinguished writer whose "History of Lace" has won a high place in literature, as well as proved a complete authority on the subject. By her kind permission some extracts from the work in question have been prefixed to Miss Marryat's instructions.

## EXTRACTS FROM "A HISTORY OF LACE."

BY KIND PERMISSION OF MRS. BURY PALLISER.

CONTRIBUTED BY MISS MARRYAT.

Lace is divided into two distinct classes—Point and Pillow. The first is made by the needle on a parchment pattern, and termed "Needle Point," "Point à l'aiguille," "Punto in aca."

The manner of making Pillow lace need hardly be described.

The Italians claim the invention of Point or needle-made lace. Lace was made throughout Italy, mostly by the nuns, and expressly for the service of the Church. Venice was celebrated for her Point, and Genoa for her Pillow lace. The Italian laces best known in the commercial world in the earlier periods were those of Venice, Milan, and Genoa.

To Venice belongs the invention of the two most perfect productions of the needle, "Point Coupé," and the Venetian Point in relief. Various other wonderful products of the needle are included under the general name of Venetian Points—all of exquisite workmanship, but which baffle description.

In the islands of the Lagune there still lingers a tale of the first origin of this most charming production.

A sailor youth, bound for the Southern Seas, brought home to his betrothed a bunch of that pretty coralline (Fig. 1), known to the unlearned as the "Mermaids' Lace." The girl, a worker in Points, struck by the graceful nature of the seaweed, with its small white knots united, as it were, by a "bride," imitated it with her needle, and, after several unsuccessful trials, produced that delicate guipure which before long became the taste of all Europe.

Our *porte-bouquets* and lace-trimmed nosegays are nothing new. On the occasion of the annual visit of the Doge to the Convent delle Vergine at Venice, the lady abbess, with the novices, received him in the parlour, and presented him with a nosegay of flowers, placed in a handle of gold,

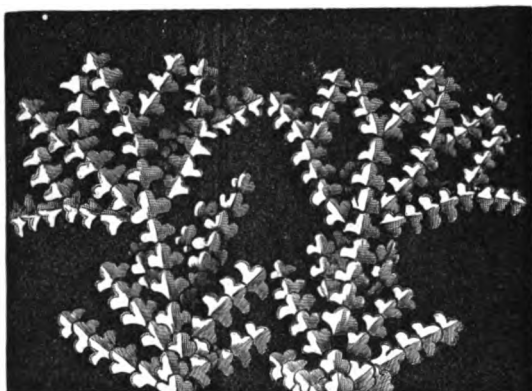


Fig. 1.

and trimmed round with the finest lace that Venice could produce. Lace in Genoa is called "Pizzo." The Points of Genoa were all the work of the pillow, and made of fine hand-spun thread brought from Lombardy. Silk was procured from Naples. This was the Genoa Point *par excellence*, and is still known by this appellation.

The lace manufacture extends along the coast from Albissola, on the western Riviera, to Santa Margherita, on the eastern. The workers are mostly the wives and daughters of the coral-fishers, who support themselves by this occupation during the long and perilous voyages of their husbands. The manufacture of Tape Guipure has existed in the province of Chiavari for many centuries. This is the species of lace that has lately been imitated and revived under the name of Modern Guipure.

There exists a beautiful and ingenious work, taught in the schools and convents along the Riviera, and carried to great perfection at the Albergo de' Poveri at Genoa. This art is principally applied to the ornamenting of towels, termed "macramè," a long fringe of thread being left at each end for the purpose of being knotted together in geometrical designs. These richly trimmed macramè form an item in the wedding *trousseau* of a Genoese lady, while the commoner sorts find a ready sale in the country, and are also exported to South America and California. The making of macramè has of late years become a favourite employment.

Spanish Point, in its day, has been as celebrated as that of Italy. Many reasons exist why it was less known to Europe in general than that of other nations. The dress of the Court, guided by sumptuary laws, gave little encouragement to the manufacture; while the numberless images of Our Lady and other patron saints, dressed and re-dressed daily in the richest vestments, together with the albs of the priests and the decorations of the

altars, caused an immense consumption for ecclesiastical purposes. "Of so great value," says Beckford, "were the laces of those favoured Madonnas, that in 1787 the Marchioness of Cogalhudo, wife of the eldest son of the semi-royal race of Medina-Cœli, was appointed mistress of the robes to Our Lady of La Solidad at Madrid, a much-coveted office."

Point d'Espagne, in the usual sense of the word, signifies that gold or silver lace, sometimes embroidered in colours, so largely consumed in France during the reign of Louis XIV. Our English translation of "Don Quixote" has led some authors into adducing a passage as an evidence that the art of making bone lace was already known in Spain in Cervantes' day. "Sanchica," writes Theresa Panza to her husband, the newly-appointed Governor of Barataria, "makes bone lace, and gets eight maravedis a day, which she drops into a tin box, to help toward household stuffs. But now that she is a governor's daughter, you will give her a fortune, and she will not have to work for it." In referring to the original Spanish, we find the words rendered "bone lace," are "puntas de randas," signifying works of *lacis* or *réseuil*.

We may safely say that the fine Church lace of Spain was but little known to the commercial world of Europe until the dissolution of the Spanish monasteries in 1830, when the most splendid specimens of nuns' work came suddenly into the market—not only the heavy lace generally designated as "Spanish Point," but pieces of the very finest description, so exquisite as to have been the work only of those whose "time was not money," and whose devotion to the Church, and to their favourite saints, rendered this work a labour of love, when in plying their needles they called to mind its destination.

The modern laces of Portugal and Madeira closely resemble those of Spain—the wider, for flounces, are of silk; much narrower is made after the fashion of Mechlin. Both black and white are extensively made in the peninsula of Peniche, north of Lisbon, and employ the whole female population. Children at four years of age are sent to the lace school, and are seated at "almofadas" (pillows) proportioned to their height, on which they soon learn to manage the bobbins, sometimes sixty dozen or more, with great dexterity.

Flanders and Italy together dispute the invention of lace, the making of which forms an abundant source of national wealth to Belgium, and enables the people of its superannuated cities to support themselves, as it were, on female industry. The old Flemish laces are of great beauty, and a description of lace, called in the country "Trolle Kant," is a term which has been transferred to our own lace counties, in which lace of a peculiar make is styled "Trolly."

At one period much lace was smuggled into France from Belgium by means of dogs trained for the purpose. A dog was caressed and petted at home, fed on the fat of the land; then, after a season, sent across the frontier, where he was tied up, half starved, and ill treated. The skin of a bigger dog was then fitted to his body, and the intervening space filled with lace. The dog was then allowed to escape, and make his way home,

where he was kindly welcomed with his contraband charge. These journeys were repeated until the French custom-house, getting scent, by degrees put an end to the traffic. Between 1820 and 1836, 40,278 dogs were destroyed, a reward of three francs being given for each. At what period the manufacture of Brussels lace commenced we are ignorant. The finest kind can only be made in the city itself. Of the two kinds of ground used in Brussels lace, the bride had, a century ago, been replaced by the *réseau*, and was only made to order. The *réseau* was made in two ways—by hand (*à l'aiguille*), and on the pillow (*au fuseau*). The former is made in small strips of one inch in width, and from seven to forty-five inches long, joined together by a stitch long known to the lacemakers of Brussels and Bayeux only, called "Point de racroc," in English, "fine-joining," and consisting of a fresh stitch formed with a needle between the two pieces to be united. Since machine-made net has come into use, the "Vrai réseau" is rarely made, save for royal *trousseaux*. The lace industry of Brussels is now divided into two branches—the making of detached sprigs, either Point or pillow, for application upon the net ground, and the modern "Point gaze." The first is the Brussels *par excellence*, and more of it is produced than of any other kind. After the battle of Waterloo, Monsieur Troyaux, a manu-

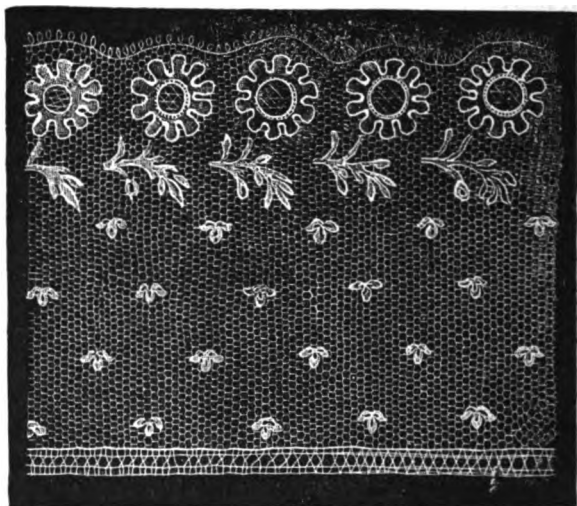


Fig. 2.

facturer at Brussels, stopped his lace manufactory, and turned it into an hospital for English soldiers. His humane conduct did not go unrewarded.

He received a decoration from his sovereign, while his shop was daily crowded with English ladies, who then, and for years after, made a point of purchasing their laces at his establishment. Monsieur Troyaux made a large fortune and retired from business.

Mechlin is the prettiest of laces—fine, transparent, and effective. It is made in one piece on the pillow, with various fancy stitches introduced. Its distinguishing feature is the flat thread which forms the flower, and gives to this lace the character of embroidery; hence it is sometimes called "broderie de Malines." Of the beau of 1727 it is said,

"Eight Macklin must twist round his bosom and wrists;"

while Captain Figgins, of the 67th, a dandy of the first water, is described, like the naval puppy of Smollett in "Roderick Random": "his hair powdered with *maréchal*, a cambric shirt, his *Malines* lace dyed with coffee-grounds." (Fig. 2.)

The most important branch of the pillow lace trade in Belgium is the manufacture of Valenciennes, which having expired in its native city, has



Fig. 3.

now spread over East and West Flanders (Fig. 3). January 6th, 1673, Colbert writes to the Comte d'Avaux, Ambassador at Venice, thanking him for the "collet de point, rebrodé que vous m'avez envoyé que j'ai trouvé fort beau. Je le confronterai avec ceux qui se font dans nos manufactures, mais je dois vous dire à l'avance que l'on en a fait dans le royaume d'aussi beau."



Point d'Alençon is made entirely by hand, with a fine needle upon a parchment pattern, in small pieces, afterwards united by invisible seams. Each part is executed by a special workwoman. Formerly it required eighteen different hands to complete a piece of lace; the number, we believe, is now reduced to twelve.

Argentan is celebrated for its Point lace, which, though generally confounded in commerce with that of Alençon, essentially differs from it in its character. The two manufactures appear to have been distinct, though some lacemakers near Lignéres-la-Doucelle worked for both establishments. Alençon made the finest *réseau*; Argentan specially excelled in the bride. The author of a little pamphlet on Point d'Argentan remembers having seen in his youth, in the Holy Week, in the churches of St. Martin and St. Germain, the statues of the Apostles covered over from head to foot with this priceless Point.

Although there long existed lacemakers in the environs of Paris, the establishment for which Chantilly was celebrated owes its formation to Catherine de Rohan, Duchesse de Longueville, who sent for workwomen from Dieppe and Havre to her *château* of Etrepagny, where she retired at the beginning of the seventeenth century, and established schools.

Some twenty years since there dwelt at Chantilly an elderly lady, granddaughter of an old proprietor, who had in her possession one of the original pattern-books of the fabric, with autograph letters of Marie Antoinette, the Princess de Lamballe, and other ladies of the Court, giving their orders and



Fig. 4.

expressing their opinion on the laces produced. Fig. 4 is a specimen taken from the above-mentioned pattern-book, and is essentially Chantilly lace.

Point de Dieppe much resembles Valenciennes, but is less complicated in its make. The ground has three threads, Valenciennes four; and whereas Valenciennes can only be made in lengths of eight inches without detaching the lace from the pillow, the Dieppe Point is not taken off, but rolled.

Valenciennes fell with the monarchy. During the War of Liberty, foreign

occupation decimated its population, and the art became nearly lost. In 1790 the number of lace-workers had diminished to two hundred and fifty; and though Napoleon used every effort to revive the manufacture, he was unsuccessful. In 1851 there were only two lacemakers remaining, and they both upwards of eighty years of age.

The lace made in the city alone was termed "*vraie Valenciennes*," and attained a perfection unrivalled by the productions of the villages beyond the walls. The labour of making "*vraie Valenciennes*" was so great, that while the Lille lace-workers could produce from three to five ells a day, those of Valenciennes could not complete more than an inch and a half in the same time. Some lace-workers only made half an ell (twenty-four inches) in a year; and it took ten months, working fifteen hours a day, to ~~finish~~ a pair of men's ruffles—hence the costliness of the lace.

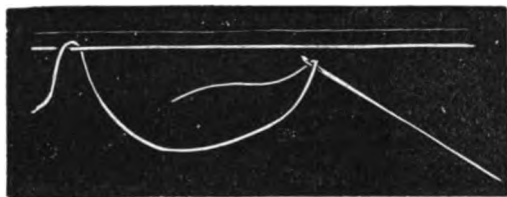
The manufactures of Lille and Arras are identical: both made white laces with single grounds (*fonds simple*); but the productions of Lille are far superior to those of Arras in quality.

The English manufacture of lace is confined chiefly to Buckinghamshire, Bedfordshire, Northamptonshire, and Devon—where Honiton is made.

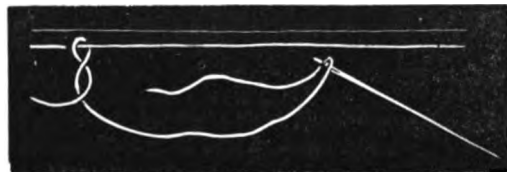
It is impossible, in so short a space, to give anything but a few extracts from "*A History of Lace*," which includes a description of every known kind belonging to every country. For the interesting facts relating to it comprised in Mrs. Bury Palliser's work, the reader must be referred to the book itself.

In looking at some old lace with a magnifying-glass, it will be perceived that there are but four varieties of stitch, and those are merely different ways of arranging the same.

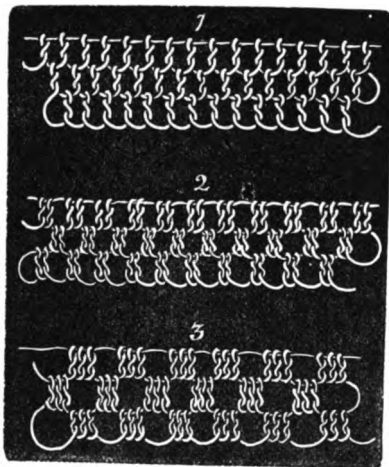
To commence this stitch, pass the needle and thread through, thus:



Next—

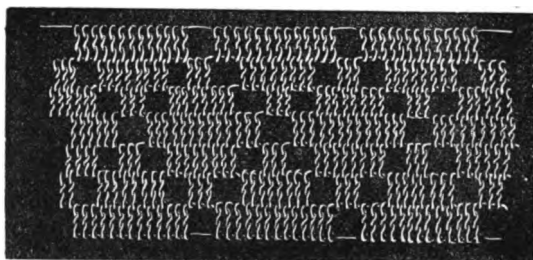


This completes one stitch. After making a row of single stitches at the distance of a stitch apart, turn and reverse the stitch in working from right to left. No. 1



No. 2 is done exactly in the same way, only that the stitches are worked two at a time at the distance of two stitches.

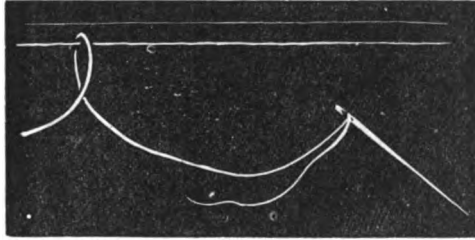
No. 3 is similar, only three at the distance of three stitches.



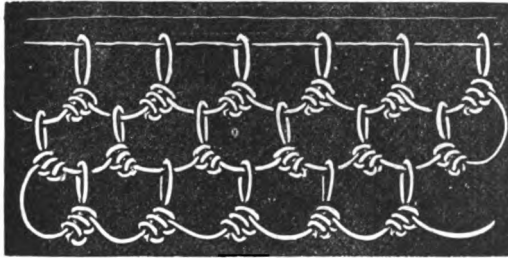
No. 4

No. 4 is the same, only made in diamonds of three, then eight, then thirteen stitches, eight, and three. These four are sufficient for any one piece of work.

There are numerous others, however. The fern, No. 5, is made by first a loop, thus :

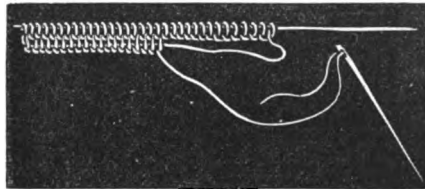


Then three buttonhole-stitches into it, backwards and forwards in returning.



No. 5.

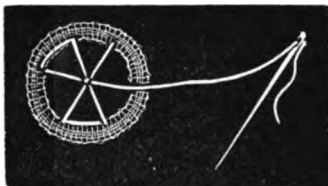
The opaque pattern, No. 6, to imitate linen, is done by first a row of buttonhole-stitch, the thread brought back again to the starting-point, and another row put into the first and repeated, taking care to work in the thread.



No. 6.

Wheels are made by first crossing the cotton backwards and forwards, as in Fig. 7, and then bringing it back again to the centre and working it round

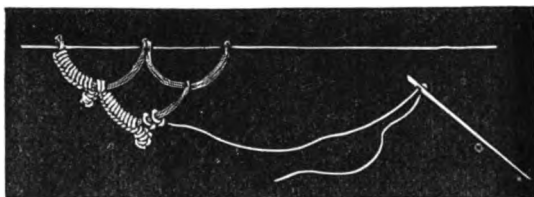
in and out into a lump, which either fasten off at the back, or run your thread up the other side into the foundation of the wheel.



o. 7.



A pretty but difficult edge for braid lacework is No. 8. Make the two first loops by passing and repassing the thread several times to give it con-



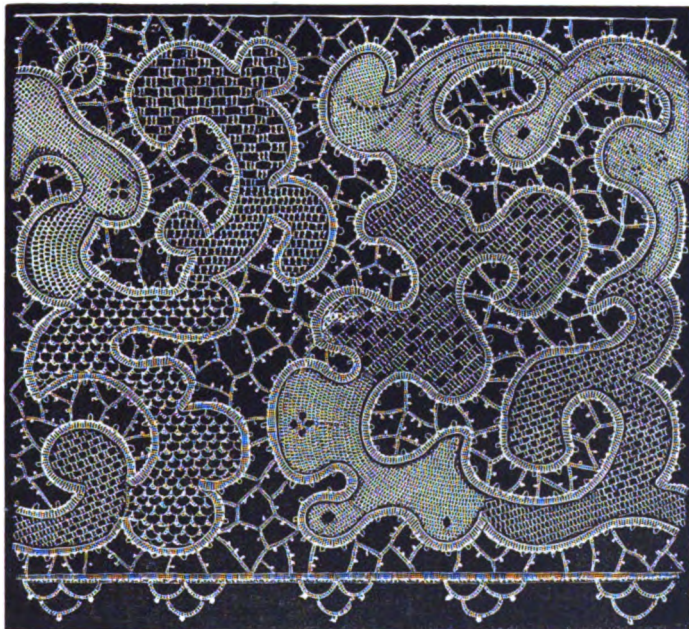
No. 8.

sistency. Then overcast to the centre of the first loop, put four stitches into one, overcast a couple more, and then make the top loop in the same way as the first. Finish that, and return to the unfinished one again, after which proceed to complete the first two.



No. 9.

No. 9 is made by overcasting the braid at the extreme edge for eight or twelve stitches, then making a small loop with cotton, and overcasting that. Then to the second, and so on. The braid is joined by *brides*, or bars of buttonhole-stitch, with a lump made by working several stitches into one, half-way across them. The pattern, which may easily be traced or bought ready done at a Berlin shop, must be first covered with braid wherever the outline is. The pattern is filled up with various stitches, according to fancy, whilst it is joined together by brides.



Mrs. Douglas, Elizabeth Street, Eaton Square, makes a beautiful braid, every half-yard of which is of a different pattern. This is hand-made; but for machine braid and linen thread, Haythorne, 20 Clumber Street, Nottingham, will be found the cheapest and best person to go to.

#### TO CLEAN VALUABLE LACE.

If you are fortunate enough to be the possessor of any fine old lace which you do not like to trust out of your own keeping, you may clean it beautifully by following the directions I am about to give.

First of all, dip it in and out of soap-suds, and put it out to dry in the open air, wetting it constantly and letting it dry again until the colour is good; then dip it into *thin clear* starch, and pin it out most carefully on a board covered with linen, or on a heavy linen sheet folded several times. Small pins must be unsparingly used, put in vertically, so as to make the lace dry up in its proper form.

Laces with a raised pattern, such as old Brussels Point, should be finished by raising the pattern with an ivory pin, rather like a good-sized bodkin,

with a round head. Any ivory turner will supply the article in question, and it is a necessary implement for a lace-cleaner.

Black lace may be restored precisely in the same manner, substituting strong sal volatile and water instead of soap-suds, with a very small quantity of gum-water added, to give the proper amount of stiffening.

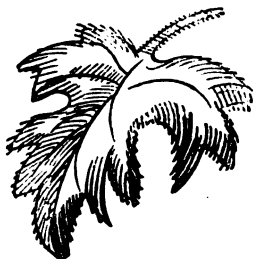
Lace-cleaning is an art, the knowledge of which is really valuable to ladies who cannot afford to pay the large prices charged—and very properly charged—for the cleaning and restoring of valuable lace. And the writer hopes that her directions, founded on her own practice, will be of use to others.

### CRETONNE WORK.

This looks best done on black satin, which you may procure with a cotton back, quite thick and good enough for the purpose, from four to five shillings a yard.

Choose a cretonne that has already a black ground, as then you may be sure that your groups will look as effective when transferred to the satin. Birds and flowers are prettiest.

Cut out the pattern in small pieces, and group it on the stuff you intend to ornament, whether a square for a cushion, or bands for borders, or a banner-screen. Some paste the flowers on to the ground, but tacking with a needle and thread round the edges answers equally well, and there is no fear of soiling the materials by adopting this plan. In a thickly-covered cretonne there will be much of the pattern you will not require to use, therefore choose only the principal features of it.



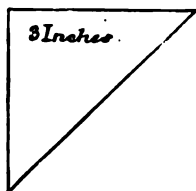
Let your silks exactly match the colour you intend to work them over, and fasten down the pattern by means of long stitches, uneven, and extending as far as the shading of the leaf goes. In a leaf like the example, shade the under edge with dark floss, pick out the veins in the centre with another dark shade, and let the long stitches at the upper half be done in a much lighter colour than that of the chief part of the leaf. If your work is decently evenly done, it will require nothing further to

make it flat than to pass an iron over it behind. If puckered, stretch it, embroidered face downwards, nailed on to a board or table; put a layer of gum, so stiff as to drag, all over it, and let it dry.

### PATCHWORK.

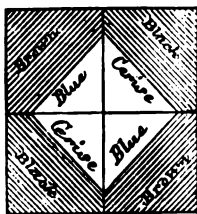
Coloured silk patchwork has become very much the fashion of late years, as it allows of pieces of silk, velvet, satin, and filoselle, otherwise useless, being turned to good account.

The old plan, which is necessary, however, in geometrical patterns such as the box and star, of lining each separate section with paper and sewing together closely, is not at all so with patchwork, equally or even more pretty, and decidedly more artistic, since it allows of greater variety both in design and materials.

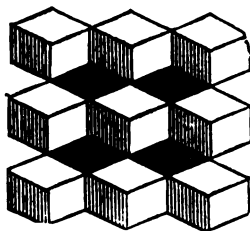


For No. 1 device, cut four half handkerchiefs of light-coloured silk, two of a similar colour, and four of dark,—for instance, two cerise, two light blue, two black, and two brown. Join the cerise and black together by running, with an occasional back stitch at the wrong side. Do the same with the blue and brown, and then join all together, taking

care that the joins meet. To do this commence sewing from the centre outwards, making the seams exactly fit each other.

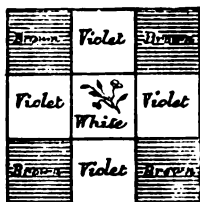


No. 1.

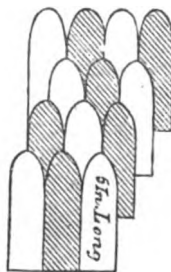


BOX PATTERN.

This composes one of the patches for a counterpane, of which a full design is given.



No. 2.



SCALE ARMOUR.

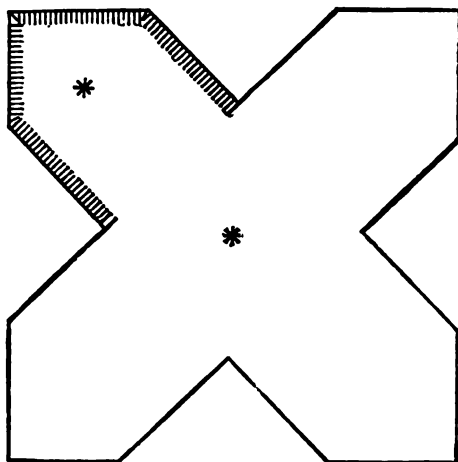
Another patch is composed of nine small squares, four of one light colour, four of the same dark colour, and a piece of velvet or brocade in the centre.



These pieces, cut  $2\frac{1}{2}$  inches square, will, when joined together, make the same sized patch as No. 1.

Scale armour is made by cutting the silk into oblong pieces, rounded at one end. The edges must be neatly turned down and tacked, then the pieces placed one over the other, the light shades diagonally alternating with the dark, and stitched outside with white sewing-silk in a machine.

Crosses or stars, cut out of velvet or velveteen, look exceeding well appliquéd on to plain pieces of silk or cashmere, with gold or white filoselle buttonhole-stitch round the edge.



No. 3.

Number 3 is the proper size to put on to a piece of silk 6 inches square. Monograms, crests, or any worked flower or device, will add to the richness

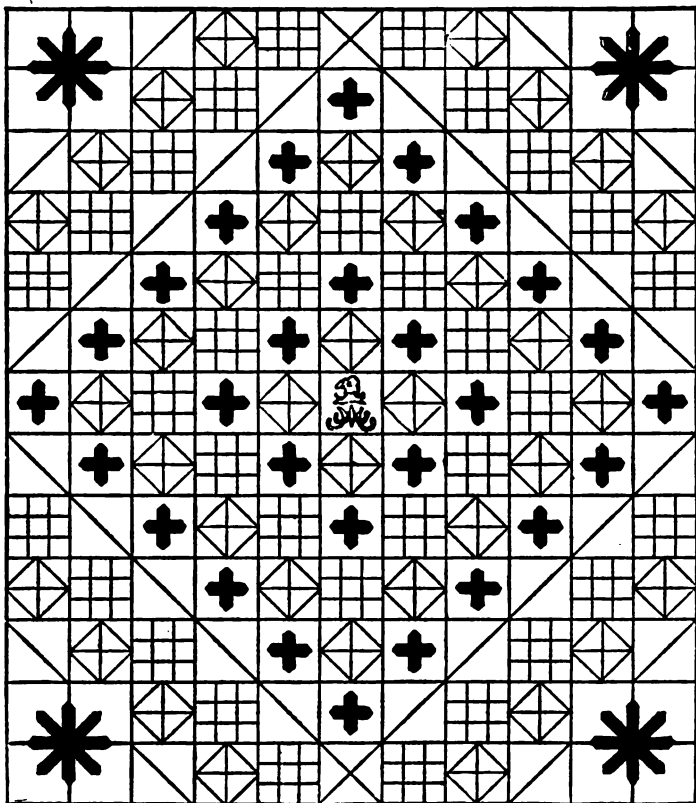


and originality of patchwork. In a large quilt, oblong bits may be introduced, or bands of ribbon.

Cashmere looks very well if ornamented with velvet appliqué, and pieces of velvet are particularly effective.

Patches should be made according to the pieces you may happen to possess. The great thing is to have them all the same size when finished.

A patchwork quilt when completed should be lined throughout with sarcenet, which, cut rather larger than the outside, can be turned over like a false hem, and fastened down with a ribbon, galloon, or velvet.



The accompanying design, in squares of 6 inches each, would measure 2 yards 6 inches in length and rather more than  $1\frac{3}{4}$  yards broad. If wanted larger, it may easily be increased by an extra row of squares, or a border.

### EMBROIDERY IN CREWELS ON LINEN OR CRASH.

Crewels are the wools used in old tapestry work; they will wash. It is a modern fashion to work with them on linen or crash.

The designs are first drawn on writing-paper. Then a piece of transfer-paper—that which is used by shop people to make duplicates of their bills—is laid on the crash, the pattern is placed over it, and traced over a little heavily with a sharp-pointed pencil. When both papers are removed, the pattern, which will be found on the crash, must be retraced in ink.

The stitches vary slightly, and cannot well be described, but in general resemble the old satin stitch worked irregularly. The flowers should be carefully shaded, and worked in natural colours.

The work can only be learnt really from a pattern.

### SILK EMBROIDERY.

Silk embroidery seems to us the perfection of artistic work. It can be done in sewing-silks, or, more commonly and effectively, in filoselle. The filoselle is either worked whole if coarse work is wanted, or each thread is split into three for use. The little centres are done in a knotted stitch, thus: The silk is twisted two or three times round the needle, and then slipped off, held firmly down, and fastened.

The embroidery may be done on any material desired.

### WORKING HOLLAND DRUGGETING.

The brown or whitey-brown holland, used for covering the centre of carpets or stair-carpeting, is also now worked by ladies in crewels or silks.

The pattern needs no tracing; it is on the material. All that has to be done is to use good taste in working it out in properly harmonizing colours.

In silk (filoselle) it looks very handsome. The edges of these druggets cut off are worked for borderings of mantelpieces, and for edging small tables; the centre in squares for antimacassars. The borders, of course, must be edged on one side with fringe of the colours of the embroidery.

### ROMAN WORK.

Roman work is simply working a pattern in buttonhole-stitch with a silk resembling very fine netting-silk. The material on which it is done is a kind of brown holland. The pattern is traced on the holland, and overcast with button-hole stitch, as in ordinary embroidery.

Care should be taken when beginning a piece of work, whether borders or a nightgown-case, &c., to get enough silk for the whole work, as it is almost impossible to match it afterwards. The ground is cut out *after* the over-casting is done, with a sharp pair of scissors; the work is then lined with coloured silk or satin.

### ANTIMACASSARS.

All kinds of pretty antimacassars are now made. Squares of Point lace are let into a kind of latticework of satin, *i.e.*, stripes of satin downwards,

are united by crossings of satin of the same width in the other direction. In the empty interstices the squares of Point lace are sewn. The whole is trimmed round with a lace border, also hand-made.

A pretty antimacassar may be made of stripes of lace insertion and satin ribbon sewn together alternately, and fringed at the end with the ribbon unravelled out, *i.e.*, the edge on one side of the ribbon is cut off, and it is unravelled out lengthwise, leaving an upper part or edge of a third of the width of the ribbon.

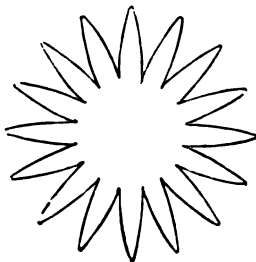
Antimacassars may be made of stripes of velvet and crochet alternately, or of towels of crash worked in crewels, which are very fashionable now.

### FERN-WORK OR SPLASHING.

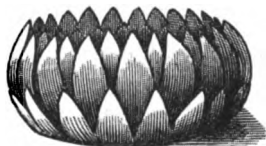
This work, which is a favourite employment of the Queen, is very easy and very pretty, requiring only great nicety and care and some taste. Take a piece of white linen or white jean; cut it out in the form of a mat, or whatever you wish to make. Then pin on it carefully, with *very* minute pins, a fern, rose-leaves, heaths, &c., &c. Mix *plenty* of Indian ink the depth of colour you require; take a fine comb and brush (which are sold for the purpose), dip the brush in the ink, and draw it over the comb, thus *splashing* the ink all over the linen till it is quite black. Let it dry thoroughly, and then unpin your flower; you will find its form left in *white* on the jean or linen; mark with a fine brush the veins, &c., in it, and your work will be ready to make up, as required.

### PAPER MAT LIKE A WATER-LILY.

Cut seventeen large rounds of coloured silver paper, two of the darkest tint of the colour you choose (a lotus may be either blue or rose colour), two of the next shade, two still lighter, and so on till you have seven shades in two circles of both. Then cut three rounds of the same size in white paper. Fold each circle in four, and cut it like this pattern: open it, and you will find it surrounded by points. Take then the little crimping roller used for making pastry. Lay



your round on a soft cushion, or on a shawl folded thickly, and run the crimper up each point: this will curl the points as much as you please. Then put the rounds inside each other and fasten them together; fixing them on a smaller round of cardboard with some strong gum; your mat will resemble this pattern.



## PAPER PILLOW.

Save all your scraps of writing-paper, old notes of no use for keeping, old envelopes, old backs of notes, &c., &c. Cut them into strips about  $\frac{1}{4}$  inch wide and 2 inches long, curl them well with an old pen-knife. Make a pillow-case of any materials you have; fill it with your curled paper mixed with a few shreds of flannel. Stuff it quite full, sew the end up, and cover it as you please.

These pillows are invaluable in cases of fever, as they keep continually cool, and are cheap and good substitutes for feather pillows.

## PEN-WIPERS.

These are made in various ways. A pretty mode is this: Cut eight rounds of cloth, four scarlet and four black; sew round the edge of each small loops of two or three crystal beads in a loop. When all the edges are finished, fold each round into eight, and sew it tightly at the corner. Cut a round of firm thicker cloth for a foundation, and fasten the others when folded on it.

## KNITTING.

## EXPLANATION OF TERMS USED IN KNITTING.

*To Cast on.*—Make a loop in your thread and place it on the pin in your left hand, then with the right-hand pin knit this stitch; but instead of letting off the first, place the second stitch on the same pin with the first. Repeat till you have the desired number of stitches on your pin.

*To Increase.*—Bring the thread forward and knit a stitch. This will make an open stitch or hole in the following row. If a close increase is wanted, pick up the loop below the next stitch to be knitted, and knit it. To increase one stitch when the row is being seamed the thread will be in front of the pin, pass it quite round the pin to the front again.

*To Decrease.*—If one stitch is to be decreased, knit two stitches together. If two stitches are to be decreased, slip one, knit two together, and pass the slipped stitch over the two knit together.

*To Fasten on.*—Make a strong weaver's knot.

*To Pick up a Stitch.*—With the left-hand pin pick up the loop below the next stitch to be knitted, knit it, and pass it to the right-hand pin.

*To Slip a Stitch* is merely to pass it from the left-hand pin to the right without knitting.

*To Seam a Stitch.*—Insert the pin in the stitch to be seamed with the point towards you, pass the thread quite round the pin, take the pin with the stitch on it out backwards. To pearl is the same thing.

*To Knit in Ribs* is to knit plain and seamed stitches alternately, as the pattern may require.

## HOW TO KNIT A STOCKING.

The stitches should be cast on ~~double yarn~~, ~~two stitches~~ taken up through each loop. After knitting eight or ten rows round, you should turn directly back, and knit on the wrong side: this makes a little elastic roll at the top. Or you may seam every two stitches if you please. This is done by knitting two stitches and purling two.

Ladies' stockings should be narrowed seven or eight times, after 4 or 5 inches have been knit from the top. The narrowing should be done on each side the seaming needle, and five or six rows knit between, each time. A long heel makes a better shaped stocking than a short one, especially if gores are knit into the sides. Gores are knit thus: knit round the foot of the stocking once, and narrow at the beginning of one side needle, and the end of the other. The second time of going round, knit through the instep needle; knit two stitches on the side needle, narrow; then turn back and knit the instep needle on the wrong side, just as you did in knitting the heel; knit two stitches in the same way from the side needle, and narrow; slip the stitch you have narrowed back upon the side needle, and knit on the other two, which belong there; then turn back and knit round the stocking after the usual manner. This knitting the instep needle twice, when you knit the others once, will produce a hole each time; but narrowing the last double knit stitch with one from the side needles every time you go round remedies the evil.

The first side you knit, after leaving the instep, knit two stitches, and narrow by slipping one stitch under the other; at the last side needle leave four and take two stitches up together. The heel must contain just half the stitches in the whole stocking. When nearly done, it must be narrowed seven or eight times before it is fastened together, by placing its two halves side by side, and knitting two stitches together with a third needle. Some finish it this way: they take just half the stitches of the heel in the middle of the needle, leaving a quarter on one side and a quarter on the other; they knit the middle only; but each time they take up one stitch from the side, and narrow it with one on the middle until all the side stitches are gone.

The foot is formed by taking up the loops on each side of the heel. Before these are knit, the side needle should be widened, by taking up an additional loop at the end of every three stitches; it should then be narrowed at the corner of the side needles until the foot is small enough.

The toe may be formed by dividing the stitches in such a way that half will be on the instep needle, and a quarter on each of the others. Knit two stitches at the beginning of the instep needle, and then narrow by slipping one of the two next stitches under the other; at the end leave four stitches, and narrow by taking up two stitches at once; slip, and bind in the same way at the beginning of one side needle; and narrow by taking up two at once, at the end of the other.

Another way is to narrow every seven stitches when you begin the toe; knit seven rows, and then narrow every seven stitches again; knit six rows,

and narrow every six stitches; knit five rows, and narrow every five stitches, and so on to the end.

### AN EASY ANTIMACASSAR.

Knit six rows of the width you wish your Antimacassar to be, more or less.

1. Knit six stitches, pass the thread in front of the needle, and knit two stitches together. Continue doing this till you have only six stitches left at the end of the row—knit them.

2. Knit one row.

3. Pearl one row.

4. Knit one row.

Repeat first row.

Repeat second, third, fourth rows.

And so on, till your Antimacassar is of sufficient length. Then knit six plain rows, and cast off. The Antimacassar will consist now of rows of holes. Darn narrow ribbon in and out of them, of any colour you please.

Make a fringe of coloured cotton like the ribbon, or of white cotton, as you like.

This Antimacassar should be in fine cotton, and done on small ivory pins about this size—O.

### CARRIAGE OR BED-ROOM MAT.

A very pretty Carriage or Bed-Room Mat may be made in knitting. Collect as much flannel list as you can; cut it into short lengths, and knit a few rows for a foundation in twine. Then take a piece of list, put it across the string, and knit it in tightly; do this for a row; then knit a row; then resume tying in the list with the knitting stitch till it is done. If you knit an edge—say six rows first—and then six stitches at the beginning and end of each row, of pieces of scarlet cloth, your mat will be much prettier, and have a nice effect; the grey and scarlet harmonizing very well. When completed, line it with a nice piece of coarse brown cloth.

### KNITTED MOSS.

Cast on about fifty stitches of light green Berlin wool; slip a stitch on your needle without knitting, and knit the next row. Continue the same till you have finished two skeins of wool, taking care never to knit the first row of each line. Then knit on it, in the same manner, two skeins of the next shade of colour, and continue this till you have knitted up five shades; join on a rich brown and a faded moss-coloured wool, and then cast off.

Soak your piece of knitting in water, and have it baked in the oven till it is quite dry; or cover it with a paper to preserve the colours, and press it with a hot iron. Let it remain for a few hours untouched. Then unfasten the last stitch, and pull it out. It will unravel easily, from the first stitch of each row not having been knitted, and you will have a good curling imitation of moss for baskets or mat borders.

## A PENCE JUG.

Six skeins of German wool, three of violet, the same of orange. Pins No. 25.

Cast twelve stitches of violet wool on the first pin for the spout, and ten stitches on each of the three other pins; knit three rounds.

Fourth round with orange; plain knitting.

In the next twelve rounds, purl two and knit two alternately, except the twelve stitches for the spout, which are to be knitted plain, decreasing one stitch alternately on each side of these twelve in the first four rounds, and one stitch on one side only, in the next eight rounds. The spout, together with the first seventeen rounds, will then be finished, when 31 stitches should remain on the pins.

Knit twelve rounds, purling two and knitting two alternately, except under the spout, where one stitch only is to be knitted; then with the violet wool commence forming the bowl of the jug, increasing by knitting two stitches in one—first knitting the front of the stitch, then the back, which will prevent the appearance of the increasing.

Purl two rounds.

Knit four rounds with orange, slipping every fourth (violet) stitch.

Knit one round with violet, increasing twelve stitches by knitting two stitches in one, as before, every sixth stitch.

Purl two rounds with violet.

Knit four rounds with orange, slipping every fourth (violet) stitch, as before.

Knit one round with violet, increasing twelve stitches by knitting two stitches in one as before, when 88 stitches should be on the pins.

Purl two rounds with violet.

Knit five rounds with orange.

Knit one round with violet.

Purl two rounds with violet.

Knit four rounds with orange, slipping every fourth (violet) stitch, as before.

Knit one round, decreasing ten stitches (with violet).

Purl two rounds.

Knit four rounds with orange, slipping every fourth (violet) stitch, as before.

Knit one round, decreasing six stitches (violet).

Purl two rounds.

Seventy-two stitches should now remain on the pins. Divide this number of stitches by six, and knit eleven rounds with orange, decreasing six stitches in each round by knitting two together at the commencement of each division, when a star of six points will be formed, and six stitches only will remain on the pins. These are to be drawn up at the point.

Take up eight stitches on the side opposite the spout, then in purl and plain rows work a piece about  $1\frac{1}{2}$  inch long with orange. The end of this is to be attached to the first row of the bowl of the jug, to form the handle



## GENTLEMEN'S SOCKS.

Three ounces of blue and 2 of white Scotch yarn, and five steel pins, No. 15, are required.

Cast 28 stitches on the first needle, and 26 on to each of the second and third needles with blue.

*1st Round.*—Seam 1 ×, knit 2, seam 2. Repeat from ×.

*2nd Round.*—Knit 3 ×, seam 2, knit 2. Repeat from ×.

Repeat these two rounds until thirty are done.

*31st Round.*—Join the white, seam 1 ×, knit 4, seam 1. Repeat from ×.

*32nd Round.*—Knit 5 ×, seam 1, knit 4. Repeat from ×.

Repeat these two rounds alternately, knitting six rounds of white and eight of blue, till six stripes of each colour are done; then divide the stitches for the heel, and with the blue knit 23 stitches off the first needle, that is, 22 besides the seam stitch, pass the five that remain on to the next needle, join the white wool, seam 2 ×, knit 1; seam 4, repeat from × till the 22 are knitted, then knit the stitch for the seam, and take 22 from the next needle, pass the four that remain on to the next needle, × seam 4, knit 1, repeat from × at the end, seam 2. Knit these 45 stitches in rows alternately seamed and knit, still keeping the ribs of 1 and 4, six rows of white, eight of blue, six of white, eleven of blue. Next row with blue: knit 19, knit 7 stitches on to a third needle, knit 2 together off the needle with the remaining nineteen stitches or the heel; × turn seam; the stitches on the centre needle, and seam 2 together off the side needle; turn; knit the stitches on the centre needle, and knit 2 together off the side needle; repeat from × till only 7 stitches remain on each of the side needles, then, at the end of each row, take one stitch from the side needle, and knit it together with the last stitch on the centre needle as one; when all the stitches are knitted off the side needles, take up 16 stitches down each side of the heel, knit with blue till you come to the needle for the instep, join the white, and knit in ribs of 1 and 4 on this needle only. The remainder of the stitches for the foot part to be in plain knitting, the stripes of white and blue to be continued. Decrease by knitting 2 together on each side of the foot part in every alternate round till six decreasing have been done, then decrease in every third round in the same places until four more decreasing have been made; knit 46 rounds without decreasing, divide the stitches for the toe, and take 2 stitches from the foot, and 2 from the instep on each side; decrease in every alternate row on each side of the 4 stitches till only 6 stitches remain between, then decrease in the centre of the 4 stitches on each side, and again on each of the other needles; divide the 2 stitches that remain, and put one on to each of the centre needles; put the two needles together and cast off.

## GENTLEMEN'S WAISTCOATS.

It has now become so fashionable for gentlemen to wear waistcoats made of *tricolor* and knitting, that we think a few patterns will be acceptable.

No. 1. *Crochet à tricoter.*—Six ounces of new violet, 6 oz. black and

white *laine perdrix*, 8-thread wool, and a *tricoter* needle, No. 9, will be required.

Make a chain of 13 inches with violet.

*1st Row.*—Take up the second loop, and draw the wool through on to the needle. Repeat this in every loop.

*2nd Row.*—Join the *laine perdrix*, and draw it through the first loop  $\times$ , take up the wool and draw it through two loops. Repeat from  $\times$ .

*3rd Row.*—Join the violet, and work the same as first row. The loops to be taken up are the long straight ones in front of the work. Repeat the second and third rows alternately, till you have made 27 inches in length. Work another piece to correspond. The work must be sent to a tailor to be made up to the size of the waistcoat required. This is also very pretty done in four rows of each colour, instead of one of each.

No. 2. *Knitting.*—Twelve ounces of claret 8-thread wool, pins No. 9.

Cast on 105 stitches.

*1st Row.*— $\times$  Knit 6, seam 1, knit 1, seam 1, knit 1. Repeat from  $\times$ .

*2nd Row.*—Seam 5, knit 1, seam 1, knit 1, seam 1, knit 1. Repeat from  $\times$ . Repeat these two rows till eight are done.

*9th Row.*—Knit 1, seam 1, knit 1, seam 1, knit 6. Repeat.

*10th Row.*—knit 1, seam 1, knit 1, seam 1, knit 1, seam 5. Repeat.

Repeat the ninth and tenth rows alternately, till sixteen are done, then repeat from first row, till about 27 inches are done. This knitting can be cut by the tailor the same as the *tricoter*.



### KNITTED SHAWL.

Half-pound of French grey 8-thread wool, and 2 oz. each of four pretty shades of pink or violet,  $\frac{1}{4}$  lb. of a fifth or darker shade, and pins No. 4, are required.

Cast on 3 stitches with grey.

*1st Row.*—Make 1, seam 1, slip 1, make 1, seam 1.

*2nd Row.*—Make 1, seam 1, slip 1, seam 3.

*3rd Row.*—Make 1, seam 1, slip 1, make 1, seam 2 together, slip 1, make 1, seam 1.

*4th Row.*—Make 1, seam 1 ×, slip the long stitch, seam 2. Repeat from ×; at the end seam 3.

*5th Row.*—Make 1, seam 1 ×, slip 1, make 1, seam 2 together. Repeat from ×; at the end seam 1 instead of seaming 2 together.

Repeat the fourth and fifth rows alternately, till all the grey wool is used, then slip the stitches off on to a piece of thread, and knit the border in the following manner:

Begin at the top of the left hand side, and pick up 1 stitch to each loop, take the lightest shade of the wool for the border, and seam 1 row.

*2nd Row.*—Make 1, seam 1 ×, slip 1, make 1, seam 1. Repeat from ×.

*3rd Row.*—Make 1, seam 1 ×, slip 1, seam 2. Repeat from ×, and at the end seam 3 instead of 2.

*4th Row.*—Make 1, seam 1 ×, slip 1, make 1, seam 2 together. Repeat from ×; at the end seam 1.

Repeat the third and fourth rows till six rows of each shade from the lightest to the darkest are done, then cast off. Take up the stitches on the other side in the same way, beginning at the lower corner on the right hand side, and at the end of every other row at the corner; take up the last loop of the corresponding row of the border on the other side, and seam it together with the last stitch as one, knit six rows of each shade from the lightest to the darkest, and cast off; take up the stitches across the neck that were let off on to the thread, join the darkest shade of the border, and knit four rows of plain knitting, and cast off in the first row of plain knitting; the two stitches that come together must be knitted together as one stitch.

A fringe of the darkest shade of the border completes the shawl.

#### FOR A BASSINET COVER, OR *COUVRE PIED*.

For a Bassinet Cover,  $\frac{3}{4}$  lb. each of three shades of pink 8-thread wool, and  $\frac{1}{4}$  lb. of white. Pins No. 3 are required.

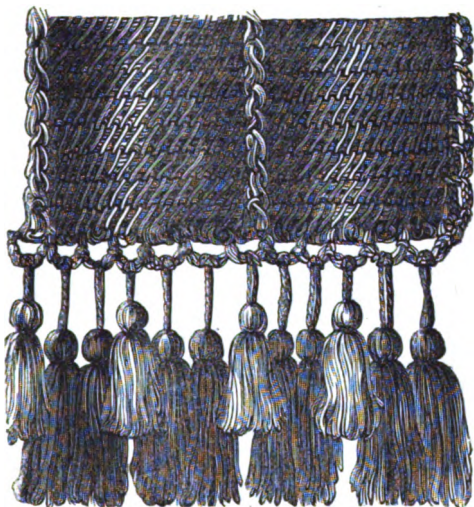
Cast on 109 stitches with the darkest shade of pink.

*1st Row.*—Seam 1, make 1, slip 1. Repeat; at the end seam 1.

*2nd Row.*—Seam 2 together, make 1, slip 1. Repeat; at the end seam 1 instead of 2 together.

The whole of the knitting is done like the second row. Knit four rows of each shade from the darkest to the lightest, four rows of white, four rows of each shade of pink from the lightest to the darkest; cast off. This completes one stripe, seven of which are required; they are joined together with single crochet in white wool. When all the stripes are joined, work one row in white all round, work a stitch of double crochet, make 4, chain, miss 2 loops; repeat. Add the pink and white tassels at the top and bottom, as shown in the engraving.

If done for a *Couvre Pied*,  $\frac{1}{4}$  lb. of black,  $\frac{1}{4}$  lb. each of scarlet, white, green, violet, gold, and blue are required; the same pins as for Bassinet Cover.



Cast on 169 stitches.

Knit four rows each of black, scarlet, white, green, violet, gold, blue, and black; cast off and join the stripes with black; add a fringe of the different colours.

### YOUNG LADY'S OPERA CLOAK.

*Very Elegant.*

Three ounces of white and 2 oz. of scarlet Shetland wool, and a large ivory crochet needle, are required. Make a chain of sixty-two stitches with white.

*1st Row.*—Work into the second chain stitch four long stitches  $\times$ , make one chain, miss three loops, work three long stitches into the next, repeat from  $\times$ , at the end work four long stitches into the last.

*2nd Row.*—Turn, make five chain, work three long stitches between the second and third of the four long stitches  $\times$ , make one chain, work three long stitches into the next hole, repeat from  $\times$  five times more, make one chain and work four long stitches into each of the three next holes, make one chain and work three long stitches into each of the next six holes, make one chain and work four long stitches into the last loop.

*3rd Row.*—Turn, make five chain, work three long stitches between the second and third of the four long stitches  $\times$ , make one chain, work three long stitches into the next hole, repeat from  $\times$  three times more, make one

chain, work four long stitches into the next hole  $\times$ , make one chain, work three long stitches into the next hole, repeat from last  $\times$  once, make one chain, work three long stitches between the second and third of four long stitches in the last row, make one chain, three long stitches into the next hole, one chain, four long stitches between the second and third of four long stitches in the last row, one chain, three long stitches into the next hole, one chain, three long stitches between the second and third of four long stitches in the last row  $\times$ , one chain, three long stitches into the next hole, repeat from  $\times$  once, one chain, four long stitches into the next hole, make one chain and work three long stitches into each hole to the end, work four long stitches in loop of five chain at the end.

*4th Row.*—Turn, make five chain, work three long stitches between the second and third of four long stitches, make one chain and work three long stitches into each hole five times, make one chain, work three long stitches between the second and third of four long stitches, make one chain and work three long stitches into the next hole five times, make one chain, work three long stitches between the second and third of four long stitches, make one chain, work three long stitches into the next hole five times, make one chain, work three long stitches between the second and third of four long stitches, make one chain and work three long stitches into the loop of five chain.

*5th Row.*—Turn, make five chain, work three long stitches between the second and third of four long stitches  $\times$ , make one chain, work three long stitches into the next hole, repeat from  $\times$ , at the end work four long stitches into the loop of five chain.

*6th Row.*—Turn, make five chain, work three long stitches between the second and third of four long stitches  $\times$ , make one chain and work three long stitches into the next hole, repeat from  $\times$  three times more, make one chain, work four long stitches into the next hole  $\times$ , make one chain and work three long stitches into the next hole, repeat from last  $\times$  twice more, make one chain, four long stitches into the next  $\times$ , make one chain, three long into the next, repeat from  $\times$  twice more, make one chain, four long stitches into the next  $\times$ , make one chain, three long stitches into the next, repeat from  $\times$  twice, one chain, four long into the next  $\times$ , one chain, three long stitches into the next, repeat from  $\times$  twice more, one chain, four long into the next  $\times$ , make one chain, three long into the next, repeat from  $\times$  three times more, make one chain, work four long stitches into the loop of five chain.

*7th Row.*—Turn, make five chain, work three long stitches between the second and third of the four long stitches, make one chain and work three long stitches alternately into the five next holes  $\times$ , make one chain, work three long stitches between the second and third of the four long stitches, make one chain and work three long stitches alternately into the next four holes, repeat from  $\times$  four times more, make one chain and work three long stitches between the second and third of four long stitches, make one chain and work three long stitches alternately into the next five holes, make one chain, work four long stitches into the loop of five at the end.



**8th Row.**—Turn, make five chain, work three long stitches between the second and third of the four long stitches, make one chain and work three long stitches alternately into twenty-eight holes, make one chain, work one stitch of single crochet into the next hole, turn, work three long stitches into the one chain, make one chain, work three long stitches alternately into the next four holes, make one chain, work four long stitches into the next, make one chain and work three long stitches alternately into the next six holes, work four long stitches into the next, make one chain and work three long stitches alternately into the next six holes, make one chain and work four long stitches into the next, make one chain and work three long stitches alternately into the next four holes, make one chain, work a stitch of single crochet into the next hole, turn, and work three long stitches into the one chain, make one chain and work three long stitches alternately into the next four holes, make one chain, work three long stitches between the second and third of the four long stitches, make one chain and work three long stitches alternately into each of the seven holes next, make one chain, work three long stitches between the second and third of four long stitches, make one chain and work three long stitches alternately into each of the five next holes, make one chain and work three long stitches into the chain where the last row turned, make one chain and work

three long alternately into the next four holes, make one chain and work three long stitches into the five chain at the end.

*9th Row.*—Turn, make five chain, work three long stitches into the first one chain, make one chain and work three long stitches alternately into each of the next thirty-one holes, make one chain, work three long into the chain where the last turn was made, make one chain and work three long stitches alternately into the next five holes, make one chain and three long stitches into the five chain at the end.

*10th Row.*—Turn, make five chain, work three long stitches into the first one chain, make one chain and work three long alternately into each of the next seven holes, make one chain, work four long stitches into the next, make one chain and work three long stitches alternately into each of the next six holes, make one chain, work four long stitches into the next, make one chain and work three long stitches alternately into each of the next three holes, make one chain, work four long stitches into the next, make one chain and work three long stitches alternately into each of the next three holes, make one chain, four long into the next, make one chain and work three long stitches alternately into the next seven, make one chain, work three long into the five chain at the end.

*11th Row.*—Turn, make five chain, work four long stitches into the first hole, make one chain, and work three long alternately into each of the next seven holes, make one chain, work three long stitches between the second and third of the four long stitches, make one chain and work three long alternately into each of the next seven holes, make one chain, work three long stitches between the second and third of the four long, make one chain and work three long stitches alternately into the next four holes, make one chain, work three long stitches between the second and third of the four long, make one chain and work three long stitches alternately into each of the next seven holes, make one chain, work three long between second and third of the four long stitches, make one chain and work three long alternately into each of the next seven holes, make one chain, work four long into the next hole, make one chain, work three long into the five chain at the end.

*12th Row.*—Turn, make five chain, work three long stitches into the next hole, make one chain, work three long stitches between second and third of the four long, make one chain and work three long stitches alternately into each of the next forty-two holes, make one chain, work three long between second and third of the four long stitches, make one chain, work three long into the five chain at the end.

*13th Row.*—Turn, make five chain, work three long stitches into the first hole, make one chain and work three long alternately into each of the next twelve holes, make one chain, work four long into the next, make one chain and work three long stitches alternately into each of the next eight

holes, make one chain, work four long into the next, make one chain and work three long stitches alternately into each of the next eight holes, make one chain, work four long stitches into the next, make one chain and work three long alternately into each of the next thirteen holes, make one chain, work three long into the five chain at the end.

*14th Row.*—Turn, make five chain, work three long stitches in the first hole, make one chain and work three long stitches alternately into each of the next thirteen holes, make one chain, work three long between the second and third of the four long, make one chain and work three long stitches alternately into each of the next nine holes, make one chain, work three long between the second and third of the four long, make one chain and work three long stitches alternately into each of the next nine holes, make one chain and work three long between second and third of the four long stitches, make one chain and work three long stitches alternately into each of the next thirteen holes, make one chain, work three long into the five chain at the end.

*15th Row.*—Turn, make five chain, work three long stitches into the first hole, make one chain and work three long stitches alternately into each of two next holes, make one chain, work four long stitches into the next, make one chain and work three long stitches alternately into the next forty holes, make one chain, work four long into the next, make one chain and work three long alternately into each of the next three holes, make one chain, work three long stitches into the five chain at the end.

*16th Row.*—Turn, make five chain, work three long stitches into the first hole, make one chain and work three long stitches alternately into the next three holes, make one chain, work three long between second and third of the four long, make one chain and work three long alternately into the next six holes, make one chain, work four long stitches into the next, make one chain and work three long stitches alternately into the next seven holes, make one chain, work four long stitches into the next, make one chain and work three long stitches alternately into the next five holes, make one chain, work four long into the next, make one chain and work three long alternately into the next seven holes, make one chain, work four long stitches into the next, make one chain and work three long stitches alternately into the six next holes, make one chain, make three long between second and third of the four long stitches, make one chain and work three long alternately into the next three holes, make one chain, work three long stitches into the five chain at the end.

*17th Row.*—Turn, make five chain, work three long stitches into the first hole, make one chain and work three long stitches alternately into the next ten holes, make one chain, work three long between second and third of the four long stitches, make one chain and work three long alternately into the next eight holes, make one chain, work three long between second and third of the four long stitches, make one chain and work three long alternately into the next six holes, make one chain, work three long between second and third of the four long stitches, make one chain and work three long



alternately into each of the next six holes, make one chain, work three long between second and third of the four long stitches, make one chain and work three long alternately into each of the next eight holes, make one chain, work three long between second and third of the four long stitches, make one chain and work three long stitches alternately into each of the next eleven holes, make one chain and work three long stitches into the five chain at the end.

*18th Row.*—Turn, make five chain, work three long stitches into the first hole, make one chain and work three long alternately into every hole, make one chain, work three long into the five chain at the end.

*19th Row.*—Turn, make five chain, work three long stitches in the first hole, make one chain and work three long stitches alternately into fifty-one holes, make one chain, work a stitch of single crotchet into the next hole, turn, make two chain, work two long stitches into the last chain stitch made, make one chain and work three long alternately into each of the next nineteen stitches, make one chain, work four long stitches into the next, make one chain, and work three long stitches alternately into the next eight holes, make one chain, work four long stitches into the next, make one chain, work three long alternately into each of the next nineteen holes, make one chain, work a stitch of single crotchet into the next hole, turn, make two chain, work two long stitches into the last, make one chain stitch, make one chain and work three long alternately into each of the next eleven holes, make one chain, work four long stitches into the next, make one chain and work three long alternately into each of the next seven holes, make one chain, work three long between second and third of the four long stitches, make one chain and work three long alternately into each of the next four holes, make one chain, work four long into the next, make one chain and work three long stitches alternately into each of the four next holes, make one chain and work three long between second and third of the four long stitches, make one chain and work three long stitches alternately into each of the next seven holes, make one chain, work four long stitches into the next, make one chain and work three long stitches alternately into each of the next twelve holes, make one chain, work three long stitches into the chain where the two long stitches at the turn are, make one chain and work three long stitches alternately into each of the next three holes, make one chain, work three long stitches into the five chain at the end.

*20th Row.*—Turn, make five chain, work three long stitches into the first hole, make one chain and work three long stitches alternately into each of the sixteen next holes, make one chain, work three long between second and third of the four long stitches, make one chain and work three long stitches alternately into each of the next thirteen holes, make one chain, work three long stitches between second and third of the four long, make one chain and work three long stitches alternately into each of the next thirteen holes, make one chain, work three long stitches between second and third of the four long, make one chain and work three long alternately into each of the next twelve holes, make one chain, work three long stitches into the chain with the two long at the turn, make one chain and work three

long stitches alternately into each of the next three holes, make one chain, work three long stitches into the five chain at the end.

*21st Row.*—Turn, make five chain, work three long and one chain stitch alternately into every hole, work three long stitches into the five chain at the end.

*22nd Row.*—Turn, make five chain, work three long stitches into the first hole, make one chain, and work three long stitches alternately into each of the next nine holes, make one chain, work four long stitches into the next, make one chain and work three long stitches alternately into each of the next ten holes, make one chain, work four long stitches into the next, make one chain and work three long stitches alternately into the next nine holes, make one chain, work four long stitches into the next, make one chain and work three long stitches alternately into each of the next nine holes, make one chain, work four long stitches into the next, make one chain and work three long stitches alternately into each of the next nine holes, make one chain, work three long stitches into the next, make one chain and work three long stitches alternately to the end, work three long into the five chain.

*23rd Row.*—Turn, make five chain, work three long stitches into the first hole, make one chain and work three long alternately into each of the next nine holes, work three long between second and third of the four long stitches, make one chain and work three long alternately into each of the next eleven holes  $\times$ , make one chain and work three long between second and third of the four long stitches, make one chain and work three long stitches alternately into each of the next ten holes, repeat from  $\times$  once, make one chain, work three long stitches between second and third of the four long, make one chain, and work three long alternately into each of the next eleven holes, work three long stitches between second and third of the four long, make one chain and work three long stitches to each of the next ten holes, work three long into the five chain at the end.

*24th Row.*—Turn, make five chain, work three long and one chain stitch alternately into every hole, work three long into the five chain at the end.

*25th Row.*—Turn, make five chain, work three long into first hole, make one chain and work three long alternately into each of the next fourteen holes, make one chain, work four long stitches into the next, make one chain and work three long alternately into each of the next ten holes  $\times$ , make one chain, work four long into the next, make one chain and work three long alternately into each of the next six holes, repeat from  $\times$  once, make one chain, work four long into the next, make one chain and three long alternately into the next ten holes, make one chain, work four long into next, make one chain and three long alternately into the next fifteen holes, make one chain, work three long into the five chain at the end.

*26th Row.*—Turn, make five chain, work three long and one chain into every hole and between the second and third of every four long in last row, work three long into the five chain at the end:

*27th Row.*—Turn, make five chain, work three long and make one chain alternately into every hole, and three long into the five chain at the end.

*28th Row.*—Join the scarlet, turn, make five chain, work three long and

one chain alternately into each of the twenty-two next holes, work four long into the next  $\times$ , make one chain and work three long alternately into the next thirteen holes, work four long into the next, repeat from  $\times$  once, make one chain and work three long alternately to the end, work three long into the five chain.

*29th Row.*—Same as twenty-sixth row.

*30th Row.*—Same as twenty-fourth row.

*31st Row.*—Turn, make five chain, work three long and one chain alternately into each of the next ten holes, make one chain, work four long into the next, make one chain and work three long alternately into each of the next eighteen holes  $\times$ , make one chain, work four long into the next, make one chain and work three long alternately into the next seven holes, repeat from  $\times$  once, make one chain, work four long into the next, make one chain and three long alternately into each of the next eighteen holes, make one chain and work four long into the next, make one chain and work three long alternately unto the end, work three long into the five chain.

*32nd Row.*—Same as twenty-sixth row.

*33rd Row.*—Same as twenty-fourth row.

*34th Row.*—Join the white, make five chain, work three long and one chain alternately into the next four holes, work four long into the next, make one chain and work three long alternately into each of the next twenty holes, make one chain, work four long into the next, make one chain and work three long alternately into the next fourteen holes, make one chain, work four long into the next, make one chain and work three long alternately into the next thirteen holes, make one chain, work four long into the next, make one chain and work three long alternately into each of the next twenty holes, make one chain, work four long into the next, make one chain and work three long alternately to the end, work three long into the five chain at the end.

*35th Row.*—Same as twenty-sixth row.

*36th Row.*—Same as twenty-fourth row.

*37th Row.*—Turn, make five chain, work three long and one chain alternately into the next nineteen holes, make one chain, work four long into the next  $\times$ , make one chain and work three long alternately into the next twenty-two holes, make one chain, work four long into the next, repeat from  $\times$  once, make one chain, work three long alternately to the end.

*38th Row.*—Same as twenty-sixth row.

*39th Row.*—Same as twenty-fourth row.

*40th Row.*—Join the scarlet and work the same as twenty-fourth row.

*41st Row.*—Turn, make five chain, work three long and one chain alternately into each of the next thirty-one holes, work four long into the next, make one chain and work three long alternately into each of the next twenty-four holes, make one chain, work four long into the next, make one chain and work three long alternately into each hole to the end, work three long into the five chain.

*42nd Row.*—Turn, make five chain, work three long and one chain alternately into each of the next thirteen holes, work four long into the next,

make one chain and work three long alternately into the next eleven holes ×, make one chain, work four long into the next, make one chain and work three long alternately into the next nineteen holes, repeat from × once, make one chain, work four long into the next, make one chain, work three long alternately into each of the next eleven holes, make one chain, work four long into the next, make one chain and work three long alternately into each hole at the end, work three long into the five chain at the end, make five chain, work one stitch of single crochet into the five chain at the end and fasten off.

For the border, work with scarlet; beginning at the end of first row, work three long stitches into the five chain and repeat: this will bring the three long stitches to the end of every other row of the centre. When you come to the five chain at the end of the forty-second row, work three long stitches, make one chain, work three more long into the same place, make one chain, work three long alternately into every hole till you come to the next corner, increase the same as other corner, work down the other side same as commencement.

*2nd Row, border.*—Work three long into one chain, make one chain, and repeat; increase at the corners same as last row, work three more rows the same as the second.

For the edge, work into the chain stitch of last row a stitch of double crochet and five long stitches, work one stitch of double crochet into the next chain stitch; at the corner work eight long instead of five.

For the Hood, join the white wool, work into the chain stitches of the first row three long into the five chain at the end, make one chain and work three long alternately into each of the next five holes ×, make one chain, work four long into the next, make one chain, work three long into the next, repeat from × once, make one chain, work four long into the next, make one chain and work three long alternately into each hole to the end, make one chain, work three long into the last stitch of the first row.

*2nd Row of Hood.*—Turn, work three long and one chain alternately into every hole and between the second and third of the four long in last row.

*3rd Row of Hood.*—Turn, make two chain; work three long and one chain alternately into every hole.

*4th Row of Hood.*—Turn, make two chain, work three long and one chain alternately into every hole except the centre one—work four into that.

*5th Row of Hood.*—Same as third row.

Repeat the fifth row until seventeen rows are done; the holes will then be reduced to five; work one row of white all round, three long into the two chain at the end of the rows, and one chain alternately; join the scarlet, work three long into one chain, make one chain, and repeat; work three more rows the same as the last, and add the same edging as to the border; run a scarlet elastic through the second last row of the Hood, fold the edge of scarlet over the white, add a bow of scarlet ribbon, and strings of the same.

### GENTLEMEN'S STOCKINGS FOR DUCK-SHOOTING OR FISHING.

One pound of Scotch yarn, and five steel pins, No. 12, are required.

Cast on 181 stitches—sixty-one on the first, and sixty on each of the other pins.

*1st Round.*—Seam 1 ×, knit 2, seam 2. Repeat from ×.

*2nd Round.*—Knit 1 ×, knit 2, seam 2. Repeat from ×.

Repeat these two rounds until twenty-six are done. The remainder of the stocking to be knit in ribs of knit 4, seam 1; and the first stitch of every round to be alternately seamed and knit.

*27th Round.*—Seam 1 ×, knit 4, seam 1. Repeat from ×

*28th Round.*—Knit 1 ×, knit 4, seam 1. Repeat from ×.

*29th Round.*—Seam 1 ×, knit 4, seam 1. Repeat from ×.

*30th Round.*—Knit 1 ×, knit 4, seam 1. Repeat from ×.

*31st Round.*—Seam 1 ×, knit 4, seam 1. Repeat from ×.

*32nd Round.*—Knit 1 ×, knit 2 together. Knit 2, seam 1, repeat from ×.

At the end knit two together. Repeat these six rounds until the number of stitches on the pins is reduced to 101. Increase one stitch on each side of the seam by picking up a stitch and knitting it. Repeat this, increasing in every eighth round, until six increasings or twelve stitches have been made. Knit ten rounds without increasing; then decrease by knitting two stitches together on each side of the seam in every fifth round till eighteen decreasings or thirty-six stitches have been decreased. Knit three rounds without de-reasing. Divide the stitches for the heel. Take twenty stitches on each side of the seam, making in all forty-one stitches. Still keep the seam stitch and the ribs of 4 and 1. Knit these forty-one stitches in rows instead of rounds for forty rows. Knit off eighteen stitches. Knit the five centre stitches on to a third needle. Knit two together off the needle with eighteen. Turn. Seam the stitches on the centre needle. Seam two together off the needle with eighteen.

Repeat this until all the stitches from the side needle are knitted off. There will be twenty-three stitches on the needle. Take up twenty-three stitches down each side of the heel, and the stitches that remained for the instep. Knit in rounds, and continue to rib in 4 and 1 for the instep, and knit plain for the foot part. Decrease by knitting two together at the beginning and end of the foot part in every other round until twenty-eight rounds are done. Knit forty rounds without decreasing. Divide the stitches, taking the instep on one, and the foot on another needle. Take two stitches from the instep, and two from the foot part, on each side. Decrease one stitch on each side of the four stitches in every other round until five remain between the four stitches. Take two from the four, and five from the upper part of the foot, and two from the next four on to one needle. Take the stitches that remain on another needle. Cast them off together.

## CROCHET.

## BASSINET COVER, OR ANTIMACASSAR, &amp;c.

For a Bassinet Cover this pattern is remarkably elegant. In stripes of white joined with blue, a pattern of corn flowers in blue worked on the white stripes,  $\frac{1}{2}$  lb. of white 4-thread wool,  $\frac{1}{4}$  lb. blue filoselle, and two skeins each of black and white filoselle are required. An alliance needle No. 12.

With white wool, make a chain of twenty-five stitches.

*1st Row.*—Insert the needle in the second loop, and draw the wool through; take up each loop of the chain in this manner to the end of the row.

*2nd Row.*—Take up the wool and draw it through two loops at a time to the end of the row.

*3rd Row.*—Insert the needle in the first loop in front, draw the wool through, repeat into each loop to the end of the row. Repeat the second and third rows alternately till the stripe is a yard long.

Work seven stripes in this way, then with blue filoselle work down the right side of each stripe in the following manner :

*1st Row.*—Work a stitch of double crochet into the first loop at the top of the stitch, then work a stitch of double crochet into the next loop, taking it through at the bottom of the stitch. Repeat these two stitches alternately to the end of the row, always missing one loop at the top after every long stitch.

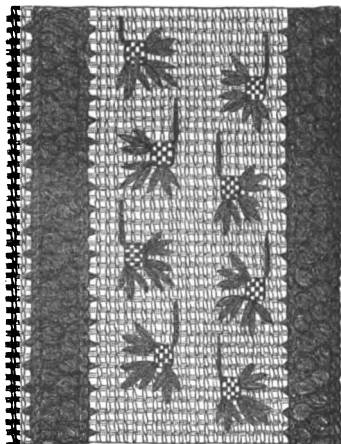
*2nd Row.*—Work a stitch of double crochet into every loop, taking the part of the stitch farthest from you.

*3rd and 4th Rows.*—Same as second.

*5th Row.*—Work a stitch of double crochet into first loop, take up the silk on the needle and insert it in the next loop of the rib below; draw the silk through; take the silk again on the needle, and draw it through the same loop; take up the silk and draw it through four loops on the needle; take up the silk and draw it through the remaining two loops; miss one loop at the top, and work a stitch of double crochet into next loop. Repeat these two stitches alternately to the end of the row.

*6th Row.*—Same as second.

*7th Row.*—Same as fifth, working the thick stitches into the loop that lies across, between those already worked in fifth row. Then work the first row down the other side of the stripe. The seventh stripe to have the whole of the border worked on both sides of the stripe. Then work the corn flower

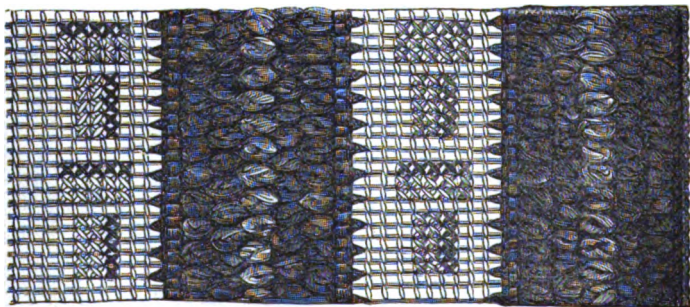


pattern as shown in the engraving on each white stripe. The stem is one long stitch in black floselle. The calyx is formed of threads of black floselle, and then darned in and out with white floselle, forming the little square shown in the pattern. The petals are formed in long stitches in blue floselle. The stripes are then sewed together; the cover is then lined with blue quilted silk, and a border of the same, about  $\frac{1}{4}$  inches wide, is turned over to meet the work.

#### HANDSOME PATTERN FOR A *COUVRE PIED*,

In stripes of rich shades of crimson, green, and violet, with white stripe between each, having a pattern in cross stitch worked on it in bright colours.

Half-pound of white 8-thread wool,  $\frac{1}{4}$  lb. black 8-thread wool,  $\frac{1}{4}$  lb. each of the two darkest shades of crimson, green, and violet, and 2 oz. each of the light shades, 1 oz. each deep maize and scarlet floselle,  $\frac{1}{2}$  oz. each green and violet ditto. Alliance needle No. 8.



With white make a chain of twelve stitches, insert the needle in the second loop, and draw the wool through. Repeat into each loop.

*2nd Row.*—Draw the wool through two loops at a time till all the stitches are let off.

*3rd Row.*—Take up the long straight loop in front and draw the wool through. Repeat this into each loop. Repeat the second and third rows alternately until the stripe is a yard and a quarter long.

Nine of these stripes will be required; on each of these stripes the little pattern in cross stitch must be worked, as shown in the engraving, in black wool, and maize, scarlet, violet, and green floselles. Then work down the right hand side of each stripe in the following manner:

*1st Row.*—With black wool work a stitch of double crochet into the first loop at the top of the stitch. Miss one loop at the top, work a stitch of double crochet into the next loop, taking it through at the bottom of the stitch. Repeat these two stitches alternately to the end of the row.

*2nd Row.*—Work a stitch of double crochet into every loop, taking the part of the stitch farthest from you. Join the darkest shade of crimson.

*3rd and 4th Rows.*—Work the same as second row.

*5th Row.*—Work a stitch of double crochet into the first loop, take up the wool on the needle, and insert it in the next loop of the rib below. Draw the wool through. Take the wool again on the needle, draw it through the same loop. Take up the wool and draw it through four loops on the needle. Take up the wool and draw it through the remaining two loops. Miss one loop at the top and work a stitch of double crochet into the next. Repeat these two stitches alternately to the end of the row.

*6th Row.*—With second shade, same as second.

*7th Row.*—Same as fifth, working the thick stitches into the loop that lies across between those already worked in fifth row.

*8th Row.*—With lightest shade, same as second.

*9th Row.*—Same as seventh.

*10th Row.*—With second shade, same as second.

*11th Row.*—Same as seventh.

*12th Row.*—With darkest shade, same as second.

*13th Row.*—Same as seventh.

Work down the other side of stripe in black the two first rows of border. The second stripe to be worked in the shades of green, and the third stripe in violet. There will be three stripes each of green and violet, and four of crimson. The fourth stripe of crimson to be worked on the other side of the last violet stripe. The stripes to be sewed together with black in the following order: Crimson, green, violet—crimson, green, violet—crimson, green, violet; ending with crimson. Then tie in a fringe at the ends of the stripes to match each. This completes the *Couvre Pied*. This pattern is also very pretty for Cushion Covers.

#### RAISED DIAMOND PATTERN, SUITABLE FOR *COUVRE PIEDS*, QUILTS, OR ANTIMACASSAR.

For the latter, 2 oz. each of crimson, green, violet, and black, and 3 oz. of maize double German wool will be required, also an alliance needle No. 6. With crimson make a chain of nine stitches, insert the needle in the second loop, draw the wool through. Repeat this into every loop.

*2nd Row.*—Take up the wool and draw it through one loop on the needle, and then through two loops at a time till all the stitches are let off.

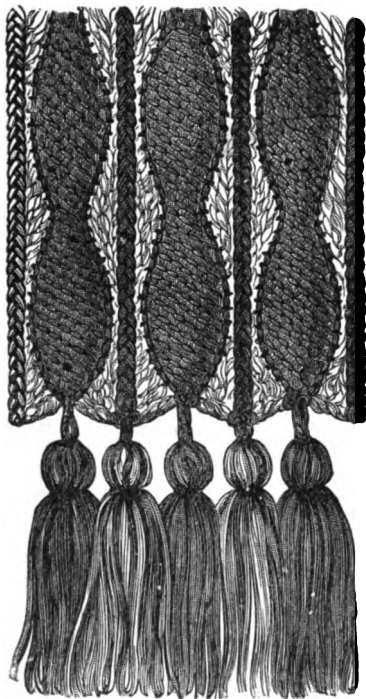
*3rd Row.*—Insert the needle in the two upper loops of the chain stitch which lies across; before the first long stitch draw the wool through. Repeat this into each chain stitch until there are nine loops on the needle. Repeat the second and third rows alternately until there are eight long stitches across the diamond. Repeat from the beginning until you have made nine diamonds.

With black wool, work a stitch of single crochet into each loop of nine chains in the first diamond, and into each loop down the side. Repeat this down the two first sides of each diamond, then work round the other sides to correspond.

With maize wool, work five long stitches into successive loops, beginning at the point of the diamond  $\times$ ; work eight stitches of double crochet into



successive loops; nine long stitches. Repeat from  $\times$  to the end of the diamonds. Work down the other side to correspond. Work four stripes of crimson, violet, and green, edged with



maize, and unite with black in the following manner: Make a loop on the needle with black, and insert it in the first long stitch at the end of stripe; draw the wool through and through the loop on the needle together; work into the first loop of the second stripe in the same way. Repeat this, taking first a loop from one side and then from the other until the joining is completed. The colours must be arranged in the following order: Crimson, green, violet; and repeat. At each end of the Antimacassar, tassels are affixed, made of the wool to match each stripe, mixed with black, and smaller ones of black and gold between.

*Directions for Making the Tassels.*

—Take a length of black wool 5 yards long, tie a loop at each end, and pass a knitting needle through each, which must be firmly held at each end of the wool, extended its full length. This must be twisted very tightly, then doubled and held in the centre, when it will twist and form a cord, which must now be tied up into 46 loops of about 3 inches of cord in each. For the large tassels take a ball of crimson and black, and wind them together over a card about 5 inches in width ten times; then cut the wool at one end, lay it across your forefinger at the centre; take a loop of cord and place it between your finger and thumb in the centre of the wool; tie it all firmly round above the knot; take the loop of cord in your fingers, let the wool fall round, then tie the tassel tightly round, about an inch below the loop of cord, which will form the head of the tassel; cut the wool even at the bottom. The black and gold tassels between the stripes are made in the same way, but rather smaller.

**VERY HANDSOME PATTERN FOR CARRIAGE RUG, IN SQUARES, WITH RAISED CROCHET.**

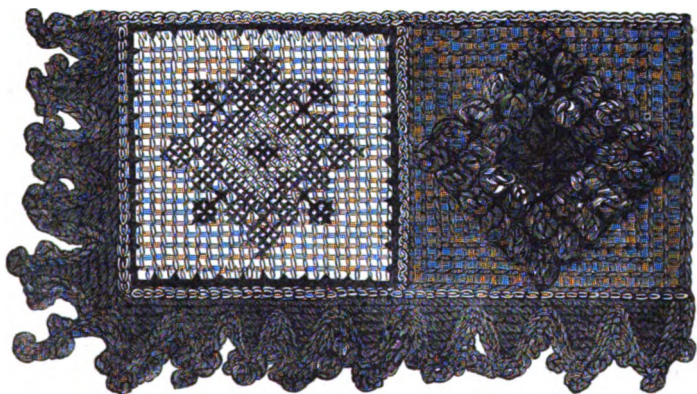
*Materials Required.*—Half-pound of white 8-thread wool,  $\frac{1}{4}$  lb. black ditto, four shades of scarlet 8-thread,  $\frac{1}{4}$  lb. each of the two darkest shades,  $\frac{1}{2}$  lb.

each of the two lightest shades, 2 oz. each of maize and blue filonelle. Alliance needle No. 8, and a crochet needle.

For raised square with darkest shade of scarlet, make a chain of four stitches, and unite it.

*1st Round.*—Work into each loop four stitches of double crochet.

*2nd Round.*—Work into front loop of first stitch of double crochet one long stitch, but the wool must not be drawn through the last part of the stitch, which will leave two loops on the needle; work four more long stitches into the same loop, finishing them as usual, but still keeping the first loop on the needle; take up the wool and draw it through the two loops on the needle. In referring to this stitch again it will be called the honeycomb stitch  $\times$ . Work one stitch of double crochet into next loop, three stitches into next loop at the corner, one stitch into the next loop, then work one honeycomb stitch into the next. Repeat from  $\times$  twice.



*3rd Row.*—Work a stitch of double crochet into each loop, and three into the loop at each corner.

*4th Row.*—Join the second shade, work a honeycomb stitch into the next loop in the second row, which will bring it one stitch off from the honeycomb in that row. Miss one loop of the top row, work three stitches of double crochet into successive loops, one honeycomb into the next loop in second row. Miss one loop at the top, work one stitch of double crochet into the next loop and three into the next. Work the other three sides to correspond.

*5th Row.*—Same as third.

*6th Row.*—Join the third shade; work one stitch of double crochet into first loop  $\times$ ; work a honeycomb into next loop in the third row. Miss one loop at the top, work three stitches of double crochet into successive loops.

Repeat from  $\times$  twice more. After the third honeycomb, work a stitch of double crochet into next loop and three stitches into the corner. Work the other three sides to correspond.

*7th Row.*—Same as fifth.

*8th Row.*—Work five stitches of double crochet into successive loops; one honeycomb stitch into next loop of sixth row; miss one loop at the top; work three stitches of double crochet into successive loops; one honeycomb into the next loop in sixth row; miss one loop at the top; work five stitches of double crochet into successive loops; work three stitches of double crochet into the corner. Work the other three sides to correspond.

*9th Row.*—Join the lightest shade same as seventh row.

*10th Row.*—Work nine stitches of double crochet into successive loops; one honeycomb stitch into the next loop in eighth row; miss one loop at the top; work nine stitches of double crochet into successive loops and three into the corner. Work the other three sides to correspond.

*11th Row.*—Same as ninth. There will be 41 of these squares required.

For the white square, make a chain of 26 stitches with alliance needle.

*1st Row.*—Insert the needle in the second loop and draw the wool through. Repeat this into every loop.

*2nd Row.*—Take up the wool and draw it through two loops at a time till all the loops are let off.

*3rd Row.*—Insert the needle in first long loop in front, draw the wool through; repeat into each loop; repeat the second and third rows alternately till 46 are done from the commencement. Then with black wool work round the white squares in the following manner: Work two stitches of double crochet into the loop at the corner  $\times$ ; work the next stitch through into the row below; miss one loop at the top; work one stitch of double crochet into the next loop; repeat from  $\times$ ; work two stitches at the corner. Repeat this round the other three sides.

The squares are to be joined with maize filoselle in single crochet, taking a loop first from one square and then from the other, drawing the silk through on to the needle; the squares are to be joined alternately red and white, the red to come at each corner. There will be 40 white squares required, and before joining, the pattern shown in the engraving is worked on the white squares with black wool, maize, and blue filoselle. When all are joined, work the border in the following manner with maize filoselle, with a stitch of double crochet into each loop all round.

*2nd Row.*—With darkest shade of scarlet, work one stitch of single crochet  $\times$ ; make seven chains, turn, miss the first; work into successive loops two stitches of double crochet and four long stitches; miss three loops of the first row, and work three stitches of single crochet into successive loops; repeat from  $\times$  all round; at the corners work only one stitch of single crochet, and miss only one loop between the points.

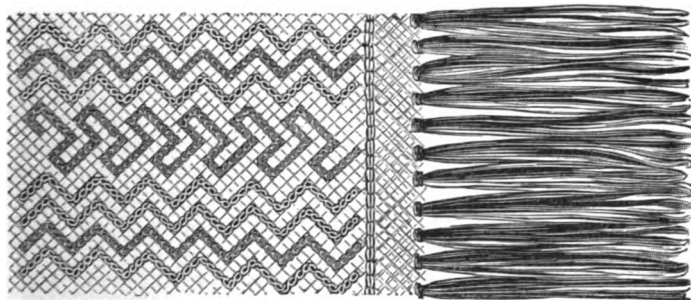
*3rd Row.*—With second shade, work one stitch of double crochet into the centre loop of the three single of last row; miss one loop, work six stitches of double crochet into successive loops, three into the point, one into each of the next six loops. Repeat from the beginning.

**4th Row.**—With third shade, work seven stitches of double crochet into successive loops, beginning on the first of the six in the last row; work three stitches into the point; work down the other side to correspond; miss the centre loop between the points. Repeat from the beginning of the row.

**5th Row.**—With lightest shade, work five stitches of single crochet into successive loops  $\times$ ; make four chain; work a stitch of single crochet into the first, miss one loop, work three of single crochet into successive loops, make four chain, work a stitch of single crochet into the first, work three stitches of single crochet, the first into the same loop as last of single crochet before the four chain; make four chain, work a stitch of single crochet into the first, miss one loop, work ten stitches of single crochet into successive loops. Repeat from  $\times$ . This completes the rug.

### VERY PRETTY ANTIMACASSAR ON NET.

A piece of net 1 yard long by three-quarters wide, sixteen skeins each of scarlet, violet, green, and maize, eight skeins of black 4-thread German wool, and one small crochet needle are required.



Work the scroll part (as shown in the engraving) in scarlet, and the lines in maize, violet, green, violet and maize; repeat the scroll in scarlet.

The wool is held under the net and the crochet needle above. Draw the wool through on to the needle; then insert the needle in the next hole of the net, and draw the wool through it and the loop on the needle.

A hem of about  $\frac{3}{4}$  inch is folded round and crocheted down with scarlet. A fringe top and bottom completes the cover.

### NETTING.

#### EDGINGS IN NETTING.



Cotton, boar's head No. 60, mesh this size—O.

Net six stitches; continue till you have a strip of some yards' length; then

gather up one side of the strip on a string to hold it by, and net on the other side in the following manner:

Fill a needle with French embroidery cotton, and use a mesh about *twice* the size of the former one. Net the embroidery cotton into every other stitch of the edge of the strip. You will have a neat and strong edging for common purposes.

#### ANOTHER AND WIDER EDGING.

Net a strip about eight stitches wide on this sized mesh—. When finished, run a string through the side stitches of the strip a few yards at a time; fill your needle with French embroidery cotton, and net on a flat ivory mesh of this size— three stitches into every alternate stitch of the edge of the stitch. When this long row is finished, net a single row in fine cotton, and on the first mesh along the edge, and your trimming will be done.

#### MIGNOTTE NETTING.

Net a strip of any length you like. Then net to the side of it, with a mesh half the size of the one used for the strip, thus:

1. Twist the cotton once round your mesh, net a stitch, then into the same loop net two plain stitches on the mesh, twist the thread round your needle, net into the next loop, then into the same, net two plain stitches, and so on to the end of the row.

2. Net a plain row, taking up the long stitches which come from the twist, and leaving the tiny ones beside them.

3. Repeat first row.


4. Repeat second row.

5. Repeat first row.

6. Repeat second row only.

Let your cotton be French embroidery for the edge, instead of 60 netting cotton.

#### A PRETTY EDGING OR FRILL IN NETTING.

Net on a fine mesh, a strip about six or seven stitches wide. Then net on the edge of it, with a flat ivory mesh this size— three stitches into every alternate loop of the edge. It is much prettier done in embroidery cotton.

Next, on the finest mesh you have, net three plain rows; then net into them a plain row on your wide ivory mesh with the embroidery cotton; now take a steel mesh *half* the size of the ivory one, and taking up three stitches on your needle; net them together. Do the same all along the line.

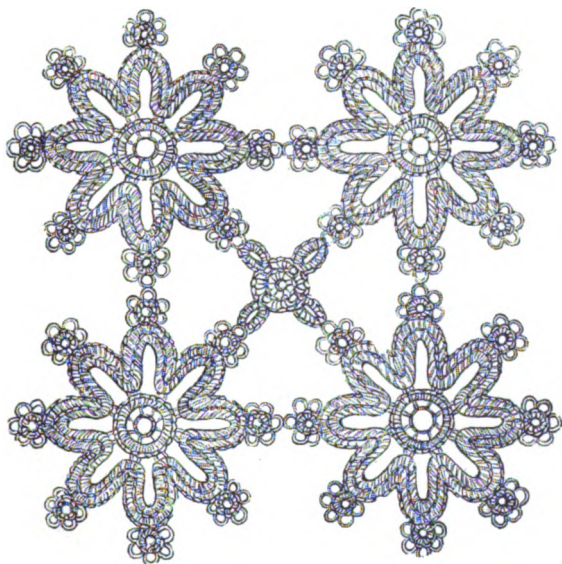
Then net a plain row on the same mesh, and begin with three stitches into every alternate one again.

Then three small plain rows, then one plain French cotton row on the flat mesh.

Next row, three stitches netted together, one plain row on large steel mesh, one row plain on same mesh in embroidery cotton.

## TATTING.

Tatting or *Frivolité* is a work which of late has deservedly been held in much estimation: it is adapted to a great variety of purposes; is extremely durable; and the great charm of it is, it can be taken up and put down at pleasure without any detriment to the work. The specimens given are easy of execution, and their novelty, it is hoped, will please.

STAR PATTERN *COUFRETTE*.

Beautiful star pattern for an Antimacassar in cotton, or it is extremely elegant for a Sofa Cushion in purse silk over coloured silk or satin; black over cerise; violet over maize; green over violet, or any mixture of well chosen colours. Twelve skeins of coarse purse twist is sufficient for a cushion cover.

For the large star with cotton No. 10 Evans's boar's head cotton.

*1st Round.*—Fill the shuttle, and make a circle round your fingers in the old-fashioned way; work 1 stitch of double tatting  $\times$ , 1 double loop, 2 double tatting; repeat from  $\times$  seven times more. Draw this up firmly into a circle.

**2nd Round.**—Take a reel or ball of cotton of the same size, and draw it through the loop close to where the thread hangs attached to the shuttle, looping it through; then pass the thread attached to the reel between the fingers of your right hand, and with the shuttle in your left  $\times$  work 7 double, 1 double loop, and 6 double; draw the thread attached to shuttle through the next loop, drawing it firmly up; repeat from  $\times$  into each of the next seven loops; the last will be the one you attached the thread on the reel to.

**3rd Round.**—Twist the two threads three times, by passing the shuttle over the thread between your fingers: this makes a twist of about  $\frac{1}{4}$  inch; work 4 stitches double, draw the thread on the shuttle through the loop at top of last row, and pass the shuttle through; make 1 stitch of double, 5 double loop, draw the cotton on the shuttle through the loop where it is, drawing it firmly up; work 4 double stitches, twist the threads three times, and then draw the cotton on the shuttle through the loop of double crochet over the next loop in circle, or rather that which lies between the double stitches attached to loop in row before; repeat this seven times more, and fasten the ends neatly off. It is best to work the stars in rows, and unite them by passing the thread or shuttle through the third loop of the 5 loop stitches at point of star, as shown in engraving.

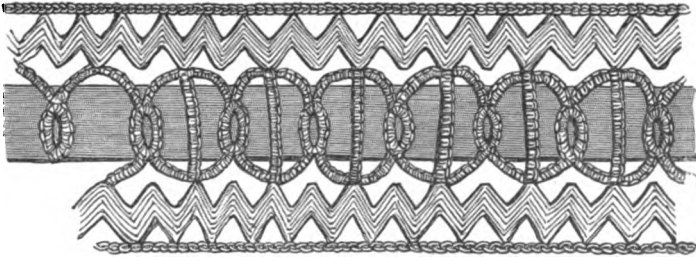
For the small star that unites the larger ones, pass the thread on shuttle round your fingers and work 1 double loop, 1 double stitch; repeat three times more, draw the cotton on the reel through the first loop made, work 4 double stitches, loop the cotton on the shuttle through the 5 loops of one of the four points of large star not attached; draw it closely up to the 4 double just made, work 4 more double, draw the cotton on shuttle through the first loop, work 2 double, and repeat from the beginning into each of the other 3 loops in same way, attaching the points of large stars in succession, then run the ends in neatly. The centre of circle in large stars is done with *glacé* thread, making a loop like a button-hole stitch to correspond with the 8 loops of the circle.

Eight reels of No. 10 Evans's boar's head cotton are required. The whole of the work, with the exception of the circles which form the centres of stars, is done on the new plan of tatting, where all the work is formed from the ball or reel, and only the thread that passes through it, and which is looped through with the crochet needle at the different parts, is used from the shuttle.

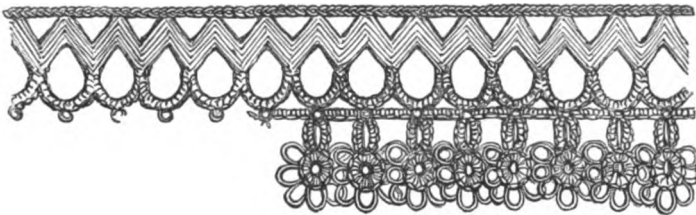
### ENTRE DEUX, OR INSERTION.

This is extremely pretty for children's frocks; two rows of it with tucks between, and three rows also with graduated tucks for the body, makes a beautiful frock; and trimmed with the edging that follows this.

It is also very useful, and makes an elegant trimming, in black purse silk, with coloured velvet or ribbon running between. Take a piece of braid, allowing a little over the length you require. Great care must be taken to procure the best vandyked braid, the width shown in engraving (and in black silk braid also it must be the best quality). Join the cotton to the first



point of braid, work a stitch of single crochet and 2 chain stitches between into each point; then on the other side of the braid with same cotton, No. 16. Evans's boar's head. Attach to first point the thread on shuttle and on reel; place the thread on reel as before described, work 5 double, leave the very smallest loop or distance, work 5 double, 1 double loop, 4 double; then draw the thread on the shuttle through the small loop left between the division of the 55 double loop stitches, draw it firmly up, make 5 double loop, miss one point of the braid, and draw the thread through the next; repeat from beginning to end of braid. Take another length of braid, and work the single crochet and chain stitches as before; then attach to first point both the threads, work 5 double, attach it to the oval on other piece of braid by drawing the cotton on the shuttle through the loop, and passing the shuttle through, attaching it closely to it; work 5 double, miss one point of braid, and draw the cotton on shuttle through next; work 11 double, draw the thread on shuttle through at the point between ovals on the other side; work 11 more double, and bring it over to the other side where the 5 double are attached; repeat from beginning.



#### OPEN STAR EDGING.

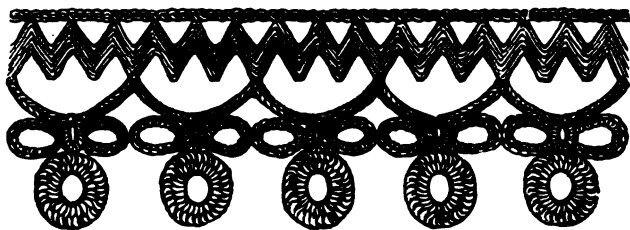
Take a length of best vandyked braid, the width shown in engraving; on one side of it, work with Evans's boar's head cotton, No. 14, a stitch of single crochet and 3 chain stitches between into each point on the other side with the shuttle filled, and reel of cotton attached to first point of braid;



work 4 double, 1 double loop, and 3 double; repeat this, drawing the thread attached to the shuttle into next point, and passing the shuttle through.

This one row only, makes a strong and suitable edging, as shown in engraving, for many purposes.

*2nd Row.*—Draw the thread attached to shuttle and that from the reel through first loop stitch in last row; work 4 double, draw the thread on shuttle through next loop, and pass thread through; work 4 double, leave the very smallest loop; work 1 double, 7 double loop, draw the *thread on shuttle* through the very small loop, and draw the thread firmly up; work 4 double, draw the thread on shuttle through the same loop as last 4 double; repeat from beginning, working 4 double and passing the thread through the next loop in last row.



#### VERY PRETTY EDGING,

To correspond with Insertion for Trimming Children's Dresses.

Take a length of the best vandyked braid and Evans's boar's head cotton, No. 20: work on one side, 3 double stitches between and a stitch of single crochet into each point; on the other side attach both the cotton on the shuttle and on the reel to first point; work 11 stitches of single tatting, leave the very smallest loop; work 5 double, 1 double loop, 4 double; draw the thread on the shuttle through the small loop, and draw the oval firmly up; work 3 stitches of single tatting; then take a good-sized pin (always use only a common pin, or, if preferred, use the pin and ring) work 21 pearl stitches and 1 of single; then pass the thread on the shuttle under the foundation thread between the first pearl stitch and last single stitch, draw the oval firmly up, work 3 single stitches, leave a very small loop, work 5 double, 1 double loop, 4 double; draw the thread on shuttle through very small loop, and draw up the oval, and then draw it through the loop opposite. On other side, work 11 single, miss two loops of braid, and draw the thread on shuttle through the fourth; repeat and unite the ovals of 5 double, and loop in centre in repeating in next pattern.

#### FRENCH EMBROIDERY.

The French are so skilful at this kind of work that it has taken its name from them. Our Ayrshire women have of late years nearly equalled them,

but there is a stiffness in the fibre of the French embroidery cotton which still bears the palm. The best sold has a cross on each packet as the trade label. The patterns are traced in blue lines on muslin or linen, either printed from blocks, like chintzes, by the regular tradesmen, or ladies may draw them to fancy with Prussian blue paint and a quill pen. Common inks would blot and blur the muslin.

The patterns are generally stars or sprigs, the flowers being connected by their stalks, sewed over and over with imperceptibly fine stitches. The principal difficulty is to make the satin stitch smooth and close. The pattern is run round and lightly crossed as a foundation, and then sewed over and over very carefully till the flowers or stars bulge out roundly from the ground-work. The hearts of the stars or flowers are done in open lace-work patterns, and great skill and labour used to be spent upon them; but they proved so trying to the eyes, being very fine and delicate, that of late years few people think them worth the trouble required.

- *Broderie Anglaise* has come much more into vogue, being simple and easy of accomplishment: the nuns at Madeira are especially adepts at this kind of embroidery. The flowers and stars are here cut out with a fine pair of scissors, then run round, and sewed over and over till the edges are quite firm. The effect is open and showy.

Patterns may be purchased cut out by machinery; but it needs a very light hand to prevent these holes from tearing while in process of sewing, especially if the pattern is an elaborate one, and the holes close together.

There is a pretty imitation of *Guipure* lace, which is done with button-hole stitch and satin stitch for the heavier parts of the pattern, and the connecting links sewed with thick thread or fine braid, or button-holed on very fine thread. The spaces are then cut out, and the result is very handsome and strong.

Chain stitch, done with rather coarse cotton (Brooks's No. 2 or 3), may be used for all braiding patterns, and is very effective. As it is quickly done, a pencil tracing on the material is quite sufficient, and any pattern can thus be copied by being held up against the light in the window-pane.

A new kind of ingrained black filoselle or spun silk may be used as a variety. There is also a pretty way of stitching with this filoselle in stars and diamonds combined, with black or speckled thread. It makes a good trimming for skirts, pinafores, children's jackets, and pelisses.

In braiding with ingrained black braid, care should be taken to use ingrained thread or silk, as otherwise the first washing will blanch the common thread, and leave unsightly white specks along the pattern. Perhaps no kind of fancy work is cheaper than white embroidery for washing purposes, as the materials are inexpensive, and a little of them goes a long way, particularly if the worker traces her own patterns.

### WORSTED WORK.

This term is chiefly applied to the art of copying with variously shaded wools, on open-threaded canvas prepared for the purpose, coloured pictures

printed on paper intersected with crossing lines, each intersection of which represents a corresponding stitch on the canvas. These pictures are mostly designed in Germany, and vary from simple geometric curves to the most elaborate fruit and flower pieces. Nay, about five and twenty years ago there was a mania for translating, as it were, the finest oil paintings on to worsted; and young ladies wearied their eyes and fingers and spines, in vain attempts to render Landseer's "Baronial Halls," Da Vinci's "Christ," or Raphael's "Madonna," in the blues and crimsons of the work-bag.

Of course they failed. However praiseworthy their industry, it was a kind of faint renewal of the antique tapestry-work of the mediæval dames; but good taste soon dictated its abandonment. The power of expression is not given to wool: the flesh tints and carnations of the basket brought a blotch instead of bloom into the faces portrayed; the squares and cross stitches made little steps in the warriors' noses—the lovers' eyes became a hideous goggle under the needle.

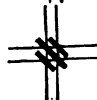
Arabesques, Etruscan and Turkish designs lend themselves more readily to this kind of representation. Flowing scrolls of bright metal tints, brilliant jewels, and kaleidoscopic stars have a good effect also, and flowers, which are so adaptable in form and so gorgeous in hues, can be twisted into any suitable design. I have seen ladies copy them direct from nature, merely sketching them lightly on paper as a guide. A good flower painter can easily trace the outlines with white chalk on cloth or silk, and work them in with silks or worsteds in satin stitch or tent stitch.

But to those who require an exact pattern the canvas is preferable, as every stitch there is counted for them, so that they cannot go astray. The favourite stitches are cross stitch, in which one of the canvas squares of two

threads each way is crossed diagonally at opposite angles, thus:



and tent stitch, in which only one thread is crossed once diagonally, thus:



four stitches occupying the space of one in cross stitch.

Many new stitches have lately been introduced: star stitch; railway stitch, long and straggling, and quickly worked, as its name imports; velvet stitch, done on a mesh, and cut like velvet pile with a blade for the purpose; tambour stitch, done in a tambour frame, with a tambour needle, much used for ladies' muslin dresses. But I am wandering from canvas work.

It is a good plan, when the ground is to be dark, to smear the canvas over with paint of the same colour, as it prevents white spaces from peeping through where the dark wool works thin, as it is apt to do, the heavy dye making it shrink more than pale colours do.

At present beads are fashionable for the pattern itself on grounds of brightly tinted worsted. The beads are generally neutral tints, dead white, transparent white, steel, and black; and they have a good effect, and are

more durable than soon-fading worsteds. But they should not be used for slippers, I think, being gritty to the tread, nor, indeed, for any soft or warm wrap. They are best for banner-screens, hand-screens, fender-guards, &c.

In grounding with cross stitch, it is not necessary to cross every thread: the worsted should be drawn across the line of stitches, and once crossed diagonally as if for tent stitch; this saves both wool and time. At present large patterns on coarse canvas are preferred, and they are certainly the best for the sight; but they are very expensive, as they consume a large quantity of worsted. Indeed, this kind of work is costly in every way, and should not be undertaken without first calculating its expense.

I have not named the frames often used for canvas work, because I think them unnecessary, having done the largest pieces always on the hand; but to many people they are absolutely essential. They can be bought at any fancy shop, with instructions for use. It seems superfluous to remind workers that in cross stitch the uppermost stitches should all slant the same way, or the effect is broken and patchy.

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## PLAIN NEEDLEWORK, AND USEFUL HINTS FOR YOUNG LADIES.

In these days of machinery much of the old plain work of women is done by the swift needle of the sewing machine, rather than by the hand, and it is to be expected that by and bye our old hemming, sewing, stitching, and gathering will be as much forgotten as the old tambour stitch and embroidery of our ancestors. But it is always possible that work may be needed when no machine is to be had, therefore we strongly recommend our young readers to learn every one of the useful modes of using the needle. We will give them such directions as are possible in the art, begging them at the same time to remember that one lesson from a good sempstress is worth a dozen pages of print.

A HEM should be (generally) narrow, and very even; the stitches taken through, but so small as to be nearly invisible. A hem on clear muslin will look neater if it is finely *run* like the seam of a dress.

IN SEWING, the stitches should be taken on the edge of the two sides, and should lay quite close to each other, so as to look like pearly.

IN STITCHING, you should take only two threads every time, both behind and before the needle.

GATHERING is done *on* the needle, two threads taken up on it, and four left, and the line should be kept very straight by a thread, if possible. The gathers, when finished, are drawn very tightly together on the thread, and stroked down smoothly with a strong needle or pin.

DARNING is done by taking every other thread (in a stocking), and leaving a long loop at the end of each line. The darn is crossed by taking every other thread alternately, each way. It used to be called "weaving." If

fine muslin is to be darned, it is better to use ravellings of the same instead of thread.

Should you have a rent in a dress to repair, use ravellings of the same material; they are easily to be obtained from the turning in of the top of the skirt, if you have no pieces; but generally some are left by the dress-maker, and should be kept for such accidents. In mending by piecing, be careful that you do it very neatly, match stripes or patterns on the material artfully, and you will have the triumph of preventing the defacement of your dress.

Learn how to make a bow of ribbon, and how to trim a bonnet. Young ladies of small means, who are ingenious and tasteful, often present a better appearance by making things for themselves, than those who, without taste or neatness, spend large sums at the milliner's. I advise you to try and make your own dresses. In order to do this, unpick an old dress that fits you; lay the several portions of the body on coarse brown paper, with the turnings *turned in*; trace the pattern carefully in ink; then draw a line round it—the spaces to be left for turning in—and cut it out. Pin these patterns on your material, and cut out the dress, taking care that you do not get two fronts for the same side, if there be a right and wrong surface to it. To prevent the possibility of this mistake, it is well to fold the material, and cut both at once. The same may be said with regard to the side bodies. Greater skill is required to put the skirt into a band than in making a body, in order that it may hang gracefully; but as fashions change continually, we can only advise you to get a good pattern to copy from, and care and patience will insure your success. If your means render it unnecessary or not expedient for you to make your own dresses, you will find it a pleasant power to be able to make up the cotton dress you destine for some poor neighbour whose want of time for needlework will render her as much obliged for the labour bestowed on it as for the gift itself.

Making clothes for the children of the poor is another mode of active charity.

It is not likely in the present day that your labours will be required for shirt-making for your male relatives; they generally prefer buying their linen ready made. But every woman ought to know how to put one together, as she cannot give a more acceptable present to her poor neighbours if she is rich; and no one can foresee how necessary the future may render such knowledge to herself. We will, therefore, tell you how a shirt is put together; supposing you can hem, sew, stitch, and gather.

Cut out your material by an old shirt of a good pattern. Stitch the wristbands and collar very neatly, taking two threads back and two forward on the needle. To miss a single thread would spoil the beauty of your work. The width to be left between the edge and the stitching is a matter of taste and fashion: for a poor man leave it wide, as, when worn, it will repair better. Then begin with the sleeves. They should be hemmed at the bottom on each side, about a finger's length up, then neatly gathered, to be put into the wristband. Take care to gather on a thread, taking two stitches and leaving four, as already said. Then put on the wristband.

Baste on the linings for the shoulder, called shoulder-pieces; then sew the seams, leaving a hem-fell, which is made thus: the raw edge is first turned down, and then turned back, like a hem wrong side outwards. When you have sewed the seam, this fell is neatly hemmed down; but the "sides" left at the bottom of the shirt should be hemmed first, so that no knots or rough corners may appear.

The length left open for the arm-holes, sides, and bosom, is usually  $\frac{1}{2}$  yard and a nail. The bosom sets better if sloped a very little before it is put into the collar.

The neck gussets are usually stitched like the wristbands, and sewed into the shoulder, over and over; but it is better to leave the gusset with the edge unturned, and to stitch the shirt upon it in two rows of stitching. Only one thread should be left between the stitching and the gusset, where the shirt joins it. The inside half is sewed to the shoulder lining very strongly, on the wrong side, and fitted to the outside half of the gusset. When the neck is gathered, gather the inside and outside halves of the gusset separately.

The side gussets look better and are made stronger by being stitched also.

The sleeves should be put in before the collar is put on.

The space into which a sleeve is gathered at the arm-hole should be exactly the same as the length of the wristband round. The length of the shoulder is sometimes  $\frac{1}{2}$  yard, and sometimes  $\frac{1}{2}$  and a nail, as may best fit the wearer. Your pattern will guide you to this, as also with regard to your shirt front.

Button-holes require great skill in making. They should be neatly overcast about three or four threads deep, *broad* work in them looking very coarse and clumsy; little bars of cotton should be formed across the corners, and neatly overcast, just the depth of the edge. In working button-holes, take care to throw the thread *forward* before catching up the loop on the needle. Gather with strong thread, waxed with white wax.

If you can make a shirt well, you can easily manufacture all female under garments; you will require only patterns for cutting out.

Longcloth and linen should be scalded before you work on them, in order to render them soft enough for the needle to pass through easily; but should you be unable, from haste or other circumstances, to have this done, take a cake of soap, and rub it on the part you are going to sew or hem; you will find your needle then slip along with the greatest ease, and will run no risk of breaking it.

We advise young ladies who have the care of their own linen, and perhaps have their own allowance for dress, to take a few hours on one fixed day, weekly, to look over their clothes and do any small repairs that may be wanted. They will find the truth of the wise old adage, "A stitch in time saves nine," and will make their linen last as long again as it would otherwise do.

Gloves should be mended on the right side, and no hole be suffered to remain a day. White gloves may be cleaned by rubbing them with milk and curd soap on a piece of flannel. Light-coloured gloves may be cleaned with

spirits of turpentine, but they must be exposed to the air a long time afterwards, to get rid of the unpleasant smell of the spirit.

Habits of neatness should be carefully cultivated. Dresses should never be put away dusty, or thrown down in a heap. Silk dresses should be wiped occasionally with a clean piece of soft flannel. Wax spots from candles may be removed from silk or satin by laying a piece of blotting-paper over the place, and holding a hot iron above it. The wax will be drawn by the heat into the paper, which, when greasy, may be removed, and another piece substituted till the whole stain is removed. Grease may be taken out of woollen dresses in the same manner.

Our young readers may be assured that the little cares bestowed on keeping their garments neat, clean, and whole, will give to their appearance that air of freshness which is in itself a charm, and prove the truest economy. Moreover, the power of using the needle skilfully will give good manipulation for other and more artistic employments, and can never be aught but a blessing to the English girl.

## COLOURED LIGHTS.

In acting charades, and above all in tableaux, coloured light is often a great improvement; indeed, sometimes it is indispensable. Therefore, although we advise our young lady readers to have nothing to do with the manufacture themselves, we give a few recipes for making it. We have no doubt some of the elder brother actors, or friends, will be willing to try our directions for them.

### TO PREPARE A BRILLIANT RED FIRE.

Weigh 5 oz. of dry nitrate of strontia, and  $1\frac{1}{2}$  oz. of finely powdered sulphur, 5 drams of chlorate of potash, and 4 drams of sulphuret of antimony. Powder the sulphuret of antimony and the chlorate of potash *separately* in a mortar, and mix them on paper; after which add them to the other ingredients, previously powdered and mixed. When you wish to use it, put a portion of the powder in a tin pan resembling a cheese-toaster, mix with it a small quantity of spirits of wine, light the mixture, and it will shed a rich crimson hue. When the fire burns dimly, a very small quantity of finely powdered charcoal or lamp black will revive it.

### PURPLE FIRE.

Purple light is produced by dissolving chloride of lithium in spirits of wine. When it is lighted it will burn with a purple flame.

### WHITISH BLUE FIRE.

Take of nitrate of baryta twenty-seven parts troy weight; of sulphur, thirteen; of chloride of potassa, five; of realgar, two; and of charcoal, there

parts. Mix them thoroughly together, and when lighted they will emit a whitish blue light, accompanied by much smoke. This light is used for fairy scenes.

#### YELLOW LIGHT.

Mix some common salt with spirits of wine in a metal cup, and set it upon a wire frame over a spirit lamp. When the cup becomes heated, the other lights on the stage should be extinguished, and that of the spirit lamp shaded in some way. The result will be that the whole group, faces, dresses, &c., will be of a strong yellow tint. This is used if you act Spenser's "Cave of Mammon" or "Plutus."

As green fire is not of much use, and it is made with a portion of arsenic in it, we do not give directions for it.

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#### TO PRODUCE THE SOUND OF FALLING RAIN IN A CHARADE.

Procure a box 6 feet long, 1 foot wide, and 1 deep. Have the bottom of it covered with small pegs of wood 1 inch high, and inserted 2 inches apart. Place a quart of dried peas at one end of the box; then raise that end quite slowly, allowing the peas to roll gradually down to the lower part of the box. The sound they produce in striking against the pegs imitates admirably the falling of rain. The sound can be continued for any length of time by raising alternately each end of the box.

#### TO GIVE A MISTY OR VANISHING APPEARANCE TO A TABLEAU.

Several curtains of thin gauze or common mosquito netting, made to let down from rollers, one after another, between the audience and the scene, will give a beautifully misty appearance; and if a sufficient number of curtains be unrolled, the tableau will appear to vanish entirely, allowing room for a change of scenery. The gauze must be carefully managed, as the disclosure of a ragged edge will dispel all the illusion.

#### BLACK LANDSCAPES.

Pass a card or piece of cardboard through the smoke of a candle till it is quite black. Then take a pen-knife, and scratch upon it any landscape or design you please. Moonlight scenery is very effective in this way. In case of lack of pencils, &c., this is not a bad way of sketching a scene one desires to remember.



## HOME STUDIES.

"A dry title!" perhaps you will say. "Surely the school-room gives quite enough work without attempting more! May we not enjoy life without lessons when our teachers set us free for a moment?" Certainly; when in the full swing of compulsory study, with many hours in each day taken up by lessons that must be performed as a duty, no one can wish you to spend your times of recreation in anything but some form of healthful play: if you are little, in actual running about; if you are older, in quieter games, or in the many pleasant pursuits that rest and amuse, and which we hope here to assist you in finding out.

But all girls have not their whole time engrossed by their teachers; and most have spaces of holiday — either they are at school and come home for the vacation, or the governess goes to visit her friends, or the whole family goes to the sea-side and there is a general relaxation, or there are sojourns with friends and a suspension of lessons. And in process of time governesses cease to educate them, and they are left to educate themselves.

I remember, when I was a growing girl, being much struck by a sentence declaring that all persons may make their own character between fifteen and five and twenty. One sort of character is very easily made by taking no trouble with oneself—never exerting the mind, and getting from one kind of amusement to another by the idlest reading, or easiest work or chatter that offers. To serve other people there may sometimes be a good deal of pains taken, and this is the best chance for such characters; but how much better worth their services would be if they had made the most of themselves! For it is quite a mistake to think that the silly unintellectual person can be more useful in homely occupations than the sensible cultivated one. She may perhaps have more readiness and be more in practice because her taste has lain that way; but she will be slower in understanding directions, less fertile in resources, and more likely to be led by foolish useless prejudices than will one who has kept her faculties bright, and understands the whys and wherefores of what she does.

Thus, a young maiden who has any real desire to become—I was going to say a valuable member of society, but I will put it higher, and say—a truly "*polished*" corner of the Temple," will like to work at her own polishing, instead of leaving herself to be rubbed down by either the tool, or by being shaken up with other stones. She will not waste her time, but will try to learn something for herself besides what she is taught; and this is one of her first steps towards "putting away childish things."

So she will not do like the many children held up for warnings in story-books, and do nothing but amuse herself in holiday-time, though I suspect she will soon be like Mrs. Gatty's happy heroine, who had the precious fairy gift of always enjoying whatever she was occupied in, and that she will feel all the wide difference between "doing what we like, and liking what we





do," the first being the most unwholesome, the second the most wholesome state for human nature.

In the school-room it is necessary to teach the rudiments of many things, without which, in these days, it would hardly be possible to pass in the crowd. Therefore much must there be acquired for which there is no natural bent. The unmathematical must learn arithmetic enough at least to cast up accounts; the unmusical ought to learn the first rules of music; the unhistorical must know the outlines of the events of the world; those with no turn for language must acquire French enough to understand and not mispronounce the phrases they meet; and what is least congenial is necessarily hammered in with the most pains, and forms the best discipline.

However, in the voluntary studies of which we are speaking, taste is the safest guide, for it generally indicates what you best can excel in. No, the superlative is not quite right, for the *safest* guide is what your parents may wish you to improve in, or what may help your brothers and sisters most. Many a brother is encouraged to face his holiday task or preparation for an examination by a sister working with him, and what she acquires in this way, for pure love, is of use to her throughout her life.

But where there is no inducement of this kind, it is the wisest way, in all cases of long holidays (except, perhaps, the Christmas fortnight), to resolve upon spending a certain time every day upon some solid occupation. It is a very good rule not to take up a story-book in the forenoon, or till a certain portion of useful reading has been gone through. It is the only way, I believe, to avoid being either dull, vacant, or frivolous, or what may lead to any or all of these—desultory. The way to have the most enjoyment is to have some real study to "break one's mind upon," and give a sense of duty done—some reasonable pursuit to engage the lively interest of eye, ear, and hand, occupy leisure moments, and afford wholesome zest and delight to all the amusements of mind and body that may offer.

The study may be of many kinds. Some young ladies will take delight in pursuing their fractions, working cube root, learning algebra or Euclid, and feeling new ideas delight them when they perceive how algebra and geometry work into one another. Such tastes, however, look very frightful to others, and for their sakes I will not pursue the subject further than to say, that those who have these likings will have special comprehension, and therefore enjoyment, of astronomy and other branches of physical science that cannot be appreciated at all without some knowledge of mathematics. Everybody learns some astronomy—at least as much as is connected with school-room geography; but, beyond this, every person ought to try to understand something of that wonderful mechanism and order which above all things seems to expand the mind to some idea of the vastness of the power and wisdom of the Creator. A little book of conversations, called "The Starry Heavens," published by the Society for Promoting Christian Knowledge, is one of the nicest books a quiet little girl could read to herself when she is just old enough to rise out of the habit of reading nothing but stories; and as she grows older, "Pictures of the Heavens," the "Orbs of Heaven," Nichol's "Architecture of the Heavens," or Thomson's "Gallery of Nature," will

much assist her in entering into the silent language by which these mighty spheres are

"For ever singing as they shine,  
The Hand that made us is Divine."

She will thus be enabled to keep up with the notices of further discoveries that come out from time to time in periodicals, such as Sir John Herschel's astronomical papers in "Good Words." I remember reading one of these with two girls of eighteen, who, finding it needful to their understanding of the article to know the difference between parabola and hyperbola, betook themselves to the search into the definitions in conic sections, and had quite as much diversion and merriment in the investigation as if they had been guessing a riddle. But without making astronomy a *study*, it is a serious loss not to make it a *pursuit*—I mean so far as to learn to know the changes of the moon, and to distinguish a planet from a star, to observe enough not to inform one's neighbours "that we have seen the comet beautifully," when we have been looking at Jupiter, whom we might have seen every night for a month. It is a great loss of pleasure not to know the constellations, and every one can learn these with a very little attention, by tracing the stars they have observed either on the celestial globe or upon such maps as those in the "Gallery of Nature." The love and delight one thus wins for the glorious hunter Orion, our Lady's Distaff as the North calls it, the Pleiades like "fireflies in a golden net," the grand glittering Vega, the Lion's red heart, the little diamond-twinkling Dolphin—all returning in their seasons like dear old friends—are not to be thrown away out of mere indifference and inattention to some of the most glorious works of the Maker of all things.

I have said that astronomy may be a study or may be a pursuit. This would be the case with almost everything worth doing at all. The thorough-going generally turn their amusement into a study by their resolution really to go to the bottom of things, and understand the principle. Truly, they only find that "the mystery is gone farther;" but they have learned to wonder at the mystery, which they will never be able to do without study. The maid-servant who tells the child to fling away its hand-full, for it is "only nasty littering moss," sees no mystery, while the botanist sees marvels inexplicable.

While, however, you are a little busy "scholar," as the census calls you, you will generally find pursuits quite enough for your brain. Collections of flowers, shells, minerals, fossils, coins—all, if properly arranged in accordance with some easy guide-book, will lead you through much interesting knowledge to the threshold of sciences that you may pursue to some purpose when your time is more your own. The collections should be always well sorted and kept in good order, without which they become absolute rubbish—a burden to the proprietor, a nuisance to everybody, and such an exasperation to the housemaids and the authorities that they will probably be confiscated, and the whole pursuit quashed, perhaps never to be resumed. Collecting is delightful work; only, as you grow past childhood, it is just as well, before beginning a collection, to ask, "Is this a rational thing?" There is much

to be said in favour of foreign postage stamps, and of autographs (except that collectors get hardened into importuning perfect strangers for them); but every one now laughs at the old mania for amassing used English queen's heads, and in a dozen years people will be wondering what was the pleasure of finding in how many different ways the letters of the alphabet can be twisted together on the top of a sheet of note-paper. Some collections will have served to give you interest in the studies they are connected with, will make you enjoy your walks, see with your eyes, and read with an object. If you have a brother in a fit of chemistry, he will probably make you help him, and you had better learn to understand his intentions and the principles on which he works; or, if not, "The Chemistry of Creation," and other like books, should be read, both to fill your mind with wonder at the marvellous things of this earth, and to give you clear and accurate knowledge, so that you may not fall into absurd blunders about gases, &c.

One class of minds delights chiefly in these present tangible things; there is another class which is more interested in men than in things; and of course there are also many, and these the more active spirits, which have room for both.

It is most advisable that part of the day's deeper reading should be historical. Those who really cannot bring themselves to care about things past, nor remember them, may perhaps more profitably spend their time over what they do care about; but this is not common among educated people, because there is so much in their daily lives that requires a reference to the past. Scarcely an ornament do they see but has a Greek or Gothic model; they are surrounded with pictures of historical scenes; the fields, houses, towns, or ruins around them have witnessed the great events that still influence our lives. It must be a very callous mind that does not heed all this; and besides, how great is the enjoyment of thinking about great characters and gallant men of old! If you never read anything except about little boys and girls, how they tore their frocks and were put in the corner, and the like, your mind will grow down to them, and you will think Leonidas guarding Thermopylæ, or Cornelia showing her jewels, or Bruce baffling the bloodhounds, only stupid things, never to be thought of out of lessening-time; and you may end by being like the lady who thought "Plutarch's Lives" very entertaining till she found they were all true, when they at once grew stupid!

Even a young child can thoroughly enjoy an easy history, such as Croker's "Tales from English History;" and there are many more as charming—above all, "Tales of a Grandfather." I think I could not have been ten years old when I used to read of Bruce's wanderings, and dwell again and again upon the beautiful description of the finding of his grave. It is wise to take such books as these to read on journeys or by the sea, because one can come back and back to them; whereas many stories do not bear being often read over; it is only the very best that one can read for ever.

But one thing let me advise you, and that is, don't keep to small books. It is quite a mistake to be afraid of a big book, and think it must be dry. You are set to read abridgments in the school-room, because you must there learn the

framework in as small compass as possible, and of course it is very likely to be dull and dry ; but go to the places where the abridgments are taken from, and there you will find that the people have room to spread out and seem to be alive, so that we can care about them. By the time you are twelve or thirteen you should be able to read a well-written history with pleasure. Perhaps ancient history is the best to begin with, for we can understand the great people of old better than modern ones. Rollin, Thirlwall, Arnold, or "The Life of Alexander" in "The Family Library," are the kind of books I mean. Or, again, such a book as Sir F. Palgrave's "Anglo-Saxons," Archdeacon Churton's "Early English Church," Thierry's "Norman Conquest," Keightley's "Crusaders," Prescott's histories again—many and many more that I could mention—would give you great enjoyment as you read, when once you have made up your mind to it—make all the day livelier to you—enable you to understand sensible people's conversation—give you delight in pictures, curiosities, relics, that would otherwise be unmeaning toys—and, if you have a companion or friend of the same tastes, will give you many a charming subject of conversation and discussion. Your elders, if they see you have such a taste, will be sure to tell you what books you may read, and indeed there is much less doubt about reading histories than reading stories or poems.

However, I think you should also try to read the real great poems. Some you have learned in fragments in the school-room ; but there is no time there to let you really get acquainted with them. You should read a translation of the "Iliad" and "Odyssey," which you can enjoy quite young ; Tasso and Dante you may, I hope, one day read in Italian ; but you should especially aspire to Shakespeare and Spenser so soon as ever you are thought old enough to be trusted with them. The earlier and the better you know both them and Milton, the greater will be your enjoyment of them, and the better your taste. It is the same with Scott and Southey. There is something specially engaging to young minds in the chivalrous freshness and animated life of Scott, his ringing verses and high spirit of honour ; and so too the noble sentiments and beautiful self-devotion throughout Southey's "Roderick," and the wild beauty and strange adventure in his "Thalaba" and "Kehama," will make them very charming reading to you ; and it is much the best way to read poems like these while you are young and have time, before you get whirled off by the literature of the day.

Languages are in general so much the chief study in the school-room, that they would hardly come under the class of what a young girl would work at alone, unless indeed she has not the usual amount of lessons required of her. Except the picking up of Latin to help a brother, very little had better be done in that way before the schooling has ceased. Then, it may be feared, it is too much the usual habit to make very little use of what has been acquired with so much trouble. It is not always easy to get foreign books, and nobody ever thinks of looking at the rows of French memoirs and histories, with tarnished gold backs, in the drawing-room book-case. Perhaps the French master has said "they are old French," and set his pupil to read the "*Recueil*," with which he is most familiar. So she never becomes

acquainted with the beautiful, idiomatic, carefully studied French that prevailed before the Revolution; and as, quite rightly, her mother will not let her read a modern French novel till she has heard its character, that language, the most familiar of all, remains useless excepting if she goes abroad. Now, French is particularly well suited to history and biography; and any good London library will supply you with long lists of books that will furnish very useful reading—Capetigue, Thierry, and many another among the moderns, to say nothing of the crowds of most entertaining memoirs of older date. Or the beautiful journals of Eugénie de Guérin should be read by all; while, among lighter books, Souvestre's are nearly all sure to be safe reading; and besides these we might mention Féval's "*Fée des Grèves*," Lady Georgiana Fullerton's "*Comtesse de Bonneval*," Mme. Reybaud's "*Cabaret de Gaubert*," as thoroughly interesting and unexceptionable.

German ought likewise to be kept from dropping out of use, which it is extremely disposed to do, although universally learnt. It is best to get lists of German books from trustworthy friends; or, failing these, you are always on safe ground with history. Fouqué's exquisite tales are despised by German masters, as not being in perfect language; but those who read for the sake of beauty and poetic ideas should assuredly not neglect the more celebrated of these.

Either German or Italian is sometimes omitted in the school-room, and thus affords a field of enterprise for after study. The great Italian poet will furnish you with years of study, when once you have worked your way to him; and Italian, too, owns the most high-minded of modern novels—"I Promessi Sposi," which ought not to be read till the first difficulties of the language are mastered.

I must not, however, be understood to urge the study of either of these languages. Neither of them is absolutely necessary to the education of an English gentlewoman. What I do urge is the habit of disciplining the mind to a daily habit of exertion. And this is infinitely more necessary after the age is past in which hours and tasks are prescribed for you. The first impulse is to shake yourself free from restraint, and idle, trifle, or amuse yourself merely by way of feeling your liberty; but by the time this has gone on a few months, unless some fresh excitement has carried you off, you will feel a great tedium, and yet a disinclination to exert yourself, which you would not have felt when your habits of application were not disused.

Try, then, to look forward to going on with something for yourself, or with a sister or friend. There ought to be each day one short interval of study requiring close accuracy—such as may be found in grammar, logic, mathematics; and another space of steady reading, to inform the mind and keep up the power of attention; and probably likewise some accomplishment to be worked up, such as music or drawing. These, and whatever besides may please you, are likely to hinder you from becoming frivolous and unsettled, and to afford you infinitely more pleasure than "all play and no work." Young girls of your own age, when visiting you, will often be well pleased to join in some such occupation, and the day will thus have a



sort of ballast, besides that the very passage you have read together will ever after seem illuminated by the talk that it occasions.

A friendship will thrive far better on substantial food shared together than on nothing but trifles. Nay, we believe that nonsense has not the power to be vigorous and merry without sense from which to rebound ; it certainly can hardly be wholesome or innocent.

Girls have lately found out a very pleasant way of supplying the stimulus that is apt to be wanting on leaving the school-room, by forming themselves into little societies for improvement. Essay Societies is the generic title, but they generally have a private one of their own, such as the Kitten Club, the Querists, Spinsters, and the like. Perhaps I cannot finish my hints on Home Studies better than by a few words upon these associations. Essay Societies is hardly a good name, for few women are capable of writing essays at all, and certainly not under twenty ; and it is better that the subject should be such as can be elucidated by intelligent diligence, instead of by knowledge of the world such as only can be gained by experience.

Let us, then, suppose the society to be called the Querist Company. The members should not be too diverse in age. Eighteen and fifteen, or eighteen and five and twenty, can work together very well, but hardly fifteen and five and twenty, and in general a girl in the school-room has not time for such extra work. The exceptions are when there are no regular lessons, or at least comparatively few, and a girl, taught by a father or mother, can obtain free access to books, but wants motive and direction in making use of them. Otherwise the members should be all girls "come out," that is, with their education left to themselves. They should be in some degree known to one another, the more intimate the better for the interest and liveliness of the affair. Some are cousins living at a distance from one another, others friends in the same neighbourhood ; but to be well known to at least two members is a good rule, or the society loses its coherence and privacy. It is well to have a head and referee. The Querists have secured a cousin of some of the parties, who, as the chief querist, queerest of all, as they say, goes by the official name of Columbine. The Kitten Club, on the other hand, make one of their members, in rotation, into "Grimalkin," and commit the management to this ruling power for the time being, making her dispense the questions and decide which is the best answer.

The questions or subjects are propounded by the Querists in rotation, two a month. More have been tried, but it was found that no one had time to attend to more than two questions : indeed, the chief reason for sending out two is that there may be a choice between them.

The questions are submitted to Columbine before they are sent round ; each member receives hers at the beginning of the month, and returns her replies at the end to Columbine, who either chooses out the best, or, when two or three bring in varieties of information, selects these, writes a letter explaining the grounds of the choice, and sends them to the nearest member, who passes them to the next, and so on round the whole party. The best answers are carefully preserved in the archives of the society, and are some-

times made quite ornamental by the drawing members of the club. A few questions shall be mentioned as specimens.

Write a short life of St. Ambrose.

Describe the course and influence of the Gulf Stream.

Translate into verse or prose Uhland's "Schloss am Meer."

Collect the passages of poetry that best describe the song of the nightingale.

What celebrated horses are mentioned in history?

Parse and give the derivations of the words in the lines—

"Mountains on whose barren breast  
The labouring clouds do often rest."

Which king do you think was most correctly termed Great, and why?

How does the story of "Quentin Durward" depart from history?

What is the difference between genius and talent?

Write a story to illustrate the saying that every cloud has a silver lining.

Give an account of the British forest trees.

These are such questions as the Querists put to one another. In answering, the rule is that there must be no direct assistance from elders in the family, except in suggesting books; and books, though freely consulted, must not be copied, except in making acknowledged quotations. The authorities consulted are written at the foot of the paper. Much information is thus gained and put together in a very pleasant manner, and it is well worth comparing the various opinions, or the different information that each can obtain.

After some years' work, the Querists started a manuscript quarterly magazine, called the "Oddity," which contains a medley of translations and original articles, accounts of sights seen, journeys made, sense and nonsense, fun and information, as it may happen, riddles, *jeux d'esprit*, and all the little matters that are full of interest in their right time and place. Much innocent merriment and pleasure has been obtained in this way; and if properly managed, with no publicity and no pretension, I believe that these small coteries are likely to be more of a help to intelligence than an inducement to conceit.

With these hints, then, I will conclude my few words on Home Studies. On one point I have not touched—namely, on a kind of reading that no secular studies should lead you to omit. Some portion of a devotional book, some study of comments on the Scripture, or on the Church Services and Creeds, ought to be the salt of your day. For remember that all information is mere vanity and weariness unless it tends to one great end, and that is, to help you to feel the greatness and glory of God, and to set it forth in your words, works, and ways.

"Though Nature weigh our talents, and dispense  
To every man his modicum of sense,

Yet much depends, as in the tiller's toil,  
On culture and the sowing of the soil."

COWPER.

## HINTS ON THE BEST METHOD OF STUDYING MUSIC.

"All we know  
Of what the blessed do above  
Is that they sing and that they love."—WALLER.

In these few words upon the study of music, music in its broadest sense is meant, not the execution of it on one particular instrument. It is possible—though a grievous deprivation—to be musical without the power of giving it expression. It is possible to enjoy music by merely looking at it—to grasp the composer's meaning—to hear in the mind the great orchestral combinations—to see the sound of the crashing chords—to gather up the floating melodies, and linger over their delights. Beethoven felt the music in his soul which he could not hear.

Therefore it is clear that music is no matter for the fingers' ends, but must go down into our hearts, from thence to find expression in voice or hand, and that without such a process it will be lifeless.

Good music is rich in ideas—there is vigour and reason in it; so that, although we may not have the wit to understand what it is, we cannot help perceiving that a purpose is there. An inferior composer, if he does get hold of an idea, wears it threadbare, whereas the great composers either almost vex us with their ever-flowing variety, and leave us longing for the repetition of a hundred enchanting subjects, or if—as is often the case, especially with Beethoven—they cling to some pet idea, and let the old melody peep out in the inner parts and in places where you least expect it, it is renewed in all conceivable forms, and under aspects which prevent any shadow of monotony. Hence arises a danger. We may well be glad when we find pleasure in listening to the works of the masters, but it requires intense and reverent study to arrive at any perception of their depth; and whether we despise what we cannot understand, or cry "How beautiful!" over it, we are almost equally presumptuous.

Like all the other arts, music greatly depends upon its grounding. At no time is a good teacher more necessary than at the very beginning; for to allow a child to be taught at first in a slovenly imperfect manner, to leave her in the hands of a person with a heavy touch and mechanical execution, and then to expect a few "finishing" lessons from a first-rate master or mistress to confer taste, brilliancy, delicate touch, and careful execution, is to expect a miracle. The "best" is the only satisfactory instruction.

But as regards the manner in which you may work by yourselves, with which we are at present more particularly concerned, both the mechanical and the intellectual part of the work have to be considered.

As to the mechanical: this may be called finger training, and no better commencement to the subject can be made than by recommending a little book called "Jackson's Finger Gymnastics" (Trübner and Co.) It contains a clear explanation of the anatomy of the hand, and a number of most useful exercises for making the fingers strong and supple without the hard labour upon the piano or violin which is usually necessary for these pur-



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poses; while the piano will be spared the worst part of its treadmill treatment, and hearers—that which is sometimes found to have an irritating effect upon the nerves.

I suppose there are no means of preventing this from being a rugged bit of the road, nor will it ever be unnecessary to preach patience and perseverance to those that stumble along it. No bright bits of colour to cheer, no sweet picture scenery opening out to beguile the way—a dry, stony path at the best, except that there is a more real satisfaction in feeling that all the while we are going on, than in lingering behind and losing time in trying impossible side paths, or contenting ourselves with half-glimpses of the glorious country into the heart of which the rough road leads.

So, courage, everybody! for we must work perseveringly, both at the exercises without the piano and at those requiring to be done upon it. The scale deserves its name—a ladder—for the help it bestows. But the scale is to train the touch no less than to give execution, and therefore it should be played at times very slowly, firmly, and evenly, using precisely the same pressure on each note. Like the scales, the exercises should be played in all the keys, and varied with full chords, by which means we obtain an insight into the different keys and the strange individuality clinging to each, which makes itself felt, in spite of each possessing the same tones and semitones, differently placed.

These should not only be played, but also sung, unaccompanied—the best training the ear can receive for distinguishing intervals and tones. Accustom yourself to sing all the intervals, the third, fourth, fifth, &c., at will, without striking them upon any instrument.

The most perfect playing is that in which the player is forgotten. Our aim must not be to arouse wonder and admiration at our interpretation, but sympathy with the music we interpret. Self-consciousness mars the work; self-seeking is fatal to it. If once playing or singing becomes a means of “showing off,” farewell to all that is good. In this lies, perhaps, the worst feature of modern *bravura* music. It deals in sensation passages, which not only corrupt the taste, but the principles, for they have no purpose in them but to display the powers of the pianist, and the only admiration they care to excite is the admiration of fingering.

A most valuable power is that of reading music easily at sight; and to obtain this power it is necessary to make a daily practice of reading new music—both playing and singing it. Those who have had the largest experience in musical teaching most strongly advocate this habit, and no one can steadily persevere in it for even a short time without feeling its advantage. It is of little consequence what the music is, as long as the portion chosen each day is absolutely new, and that when it is sung the voice is not assisted by any instrument. No better subject can be found for such practice than the vocal parts of concerted music.

Another very helpful power is to know the different Clefs. It is soon attained, and will enable you both to read old music and to study concerted music in its correct form, without obliging the tenor parts to be written in the treble clef, preceded by the humiliating direction—“to be sung an octave

lower;" a direction which could only be equalled by our teaching a child the alphabet, and explaining that a certain letter was B, but that in order to help him, we had made it look like C. The consequence of this perversion of the tenor clef is to be met with in the extraordinary muddle which exists in many minds as to the compass of a tenor voice.

The clefs may easily be learned by adding the one line wanting between the treble and bass staves:



We often forget how many difficulties have been surmounted before things familiar to ourselves were brought to their present state of perfection. It was not until close upon the thirteenth century that the simple method of representing sounds by the little dots we call notes became universal: until this time Greek letters and signs between coloured lines were used. A hundred years earlier, a monk, Guido Aretino, had been struck with hearing his choir sing a hymn to St. John the Baptist, in which the first note of every line was a tone higher than the last:

*" Ut queant laxis  
 Resonare fibris  
 Mira gestorum,  
 Famuli tuorum,  
 Solve polluti  
 Labii reatum  
 Sancte Johannes!"*

sang the sweet clear voices, and Guido adopted the first syllables to help his pupils in distinguishing the notes. Some time afterwards a seventh syllable was added, and *Ut* was changed for *Do*.

The same Guido greatly enriched the science of harmony. Some acquaintance with this is absolutely necessary for the right appreciation of music, and it is really a delightful study. If it were only from its giving an idea of the laws by which composers are guided it would be well worth acquiring, but it also gives solidity to all musical knowledge, and in reading from score it is indispensable. An elementary Grammar on Harmony, by Mr. Hullah, will open the subject very well, and lead on to Goss's "Harmony," and perhaps, for the more advanced, to Gottfried Weber's great and solid work, "The Theory of Musical Composition."

The arrangement or grouping of musical sounds is called "*Rhythm*." The meaning of the word is "measured movement," and can perhaps be best understood by examining a piece of music—a simple air, for example—when it will be found that, independently of the bars, there is, so to speak, a measured form in the air itself, made up of other smaller passages, each also measured, and, to a certain extent, complete in itself. The word, therefore, also includes *Accent*.

The value of each note—the time, as it is called—is fixed by the signature at the beginning of a piece or movement. *Bars* relate only to time, the sense is marked by other forms. The real sentence of a melody—the shortest—is called a *Phrase*. Phrases put together form a *Section*, which is complete in itself, and ends upon either one of the notes of the tonic chord of the key the passage is in, or, less frequently, upon one of the notes of the chord of the dominant. The sections, in their turn, joined together—two, three, or four—form the *Period*. Nothing can be more interesting than to make out these divisions in a great composition, and to trace the character they impress upon it—how by their means, like the metre of poetry, the work becomes fiery, impetuous, exciting, or passes along with a regular impressive movement, as phrase follows phrase, section section, and period period, in sedate and equal course.

Sometimes, by an accidental variation, for a few bars one hand has to play triple against the other playing common or 2-4 time, a difficulty which only patience and practice can overcome. Sometimes, but rarely, we meet with actually different time marked for bass and treble. Dr. Marx, in his "Universal School of Music," gives a capital description of an instance of this peculiarity occurring in the first *finale* of "Don Giovanni":

"When the Minuet commences the second time, Mozart introduces two additional and independent bands upon the stage. During the repetition of the second part of the Minuet, one of the other bands begins to tune, and throws in a few occasional notes in the time of the Minuet (3-4). But now, when the latter commences again with the first part, this second band starts against it with an *Anglaise* in 2-4 time. Both bands continue to play independently of each other; but when the first arrives at the commencement of the second part of the Minuet, the third band begins to tune and show an inclination to join in the merry sport. It does so when the Minuet commences for the third time, striking up a lively waltz in 3-8 time. And now there are at work three different bands, each with a different time and in a different movement, and the merry dancers twist and twirl about in the most charming variety of forms and groups: everything seems to be in confusion, and yet order and grace prevail throughout. The singers, too, enhance the beauty of this enchanting scene by joining their choruses to the instruments, now in this time and now in another.

"We cannot but admire the happy idea of this picturesque and delightful scene, and still more the ingenuity, facility, and sportiveness with which it has been realized by the great and amiable composer. This we all must acknowledge; nevertheless, the technical arrangement of three combined strains is simple and clear enough. To every crochet of the Minuet and *Anglaise* there is allotted a whole bar of the waltz—as it were a quaver triplet—and two bars of the Minuet (twice three crochets) stand against three bars (three times two crochets) of the *Anglaise*."

Whenever opportunities of playing with others present themselves, they should be eagerly welcomed. In playing a piece for the first time, it is well to attend especially to the time, and to keep true to that throughout. In a duet this is absolutely forced upon the performers as the only possible



means of keeping together, and it affords an admirable check to a habit of accommodating the time to their own difficulties, which single players are apt to contract. It also leads to readiness and presence of mind—invaluable qualities. Still greater advantages are obtained by practising with other instruments, if such a happy chance falls in any one's way. Nothing will so well give precision, carefulness, sympathy, and initiation into the inner meaning of the music.

To accompany singers is also excellent practice, for, to do it rightly, you must forget yourself, always yield the prominent position to the voice, yet be watchful to support it when necessary, to feel with it—to form, as it were, the most beautiful setting which can adorn the gem.

More knowledge of the fundamental laws of music is required from those who attempt to play from score and to accompany a many-voiced part, but with the difficulty the reward is proportionably greater. It needs so much manual dexterity, so much promptitude, courage, and quick perception of which part wants bringing out, and which is in danger of tottering, that few amateurs will make the trial. But as all these excellences do not come anyhow, and can only be gained by practice, they are well worth a patient struggle; and by beginning gradually—upon a fair groundwork of musical capability—playing first three, then four, and so on to more parts, score playing will become as delightful as it was troublesome.

A danger lies in wait for those who are ignorant of the laws of harmony, which may as well be noticed here with a word of warning—the use of the pedal. Ordinarily the wires only sound while the fingers rest on the keys, but when the pedal is put down, it as it were opens the wires, and leaves them all vibrating and sounding; so that, unless something is understood of harmony, the safest plan is to let the pedal alone, or an excruciating jangle of chords is the result, and discords are multiplied a hundredfold. A good lesson on this subject is gained by watching Mr. Charles Hallé's foot throughout one of Beethoven's sonatas. He is celebrated for his judicious use of the pedals, and there is almost as careful play upon them as upon the keys of the piano.

Those who respect the music they play—and nothing should be played which is not worth respecting—will take all care to give as faithful a representation of it as lies in their power. Young ladies, when they are asked to play, may not unfrequently be heard exclaiming, "Oh, pray talk all the time!" on the plea that it makes them less nervous. If any one is likely to be made nervous by silence, let them meet the difficulty by playing something easy and short. The chances are that it will be prettier than the more elaborate piece, and the listeners more willing to keep quiet during the few minutes required for its execution. But the slightest encouragement of the too common opinion that instrumental music should merely be treated as a running accompaniment to conversation must be avoided. Singing generally meets with tolerable attention, but directly an instrumental piece begins, the stream of talk flows on with increased power. To play *pianissimo* is a good silencer.

Love for music brings love for the instrument. The true musician makes

it almost a part of himself, and is loth to degrade it by playing what is not worthy. Watch the tenderness with which a violinist handles his violin. Small as it is, a good violin is a very precious instrument. Ernst's real Cremona was worth, it is said, £320, and anything more perfect than its tone cannot be imagined. How perfect, too, was the poetry which he made it speak!

It is well to be able to transpose music from one key to another with ease, but the power should be rarely employed, for the reason that a change of key will generally altogether change the colouring of the piece. The pitch of instruments has risen of late years, and has placed a great deal of fine music—Handel's, for instance—beyond the reach of ordinary voices. Singers are therefore sorely tempted to lower his songs a tone, but, unfortunately, this does not make the matter smooth. Handel chose his key as deliberately as his notes, and the music instantly suffers by the change. By way of proof, try the effect upon the short solo in the "Messiah," "There were Shepherds." The change at once makes itself felt, from the calm grave simplicity of the C major key to the B major below, keen, sparkling, and altogether unsuitable. In other places, where the change is too subtle for our discernment, we may still be sure that there is a change; and though it may enable us to sing what before was beyond us, it is, at the best, an unsatisfactory gain.

Whatever weariness or monotony there is in the mechanical and elementary part of music, we must rest assured that it is necessary labour; for to appreciate beauties, we need not only to feel, but to understand them. Such musical training, strengthened by seizing every possible opportunity of hearing noble music well played, will certainly arrive at the power of entering—in some measure rightly, however feebly—into the composer's conception.

Composers frequently assist us by giving a piece the name of its leading subject. There are some simple little "Airs, or Bagatelles," by Beethoven (Op. 33). Each is a small cabinet picture, distinctly coloured, easy of execution, and true throughout to its idea. Each becomes insignificant unless it is rendered with delicacy of touch and feeling, but no great depth is required to follow the fresh gladness of the happy "Spring" morning; the stirring tones of "La Liberté," cheerily hopeful, yet not free from the minor wail which hints at sad things to balance hope; the languid, dreamy, half-glad, half-sad "Summer" movement; the more sober, questioning "Autumn," with its plaintive ending.

But it requires a richer imagination to fill up the outline which Beethoven gave when, being asked what ideas he intended to convey in his three glorious Sonatas (Op. 29), he answered, "Read Shakespeare's 'Tempest.'"

That often the composer has in his mind a complete picture to represent in sound painting may be instanced by Mendelssohn's word sketch to Mr. Davison (quoted in a Musical Union Analysis) of the Scherzo in his Quartet in E Flat, No. 5, Op. 44: "A party of travellers, benighted and alarmed by the threatening aspect of the frowning sky, take refuge in a forest hut. To wile away the midnight hours, each of the party relates his ghost story,

when suddenly the superstitious wanderers are startled by noises from without—a supposed warning from the demon of the forest. One, more courageous than the rest, ventures to open the door, listens, and presently returns to inform his companions that the demon of the forest was nought else than the rustling of the wind and the noise of the adjacent torrent. Mutually reproaching each other for their false alarm, the thread of their ghost story is resumed by the fireside, accompanied by the distant murmuring of the boisterous elements."

The "Pianist's Handbook," by Carl Engel, contains a great number of valuable hints upon pianoforte playing, especially with regard to the intellectual conception of pieces and the form of a sonata. It also contains a good list of compositions, and advice as to their treatment.

Dussek's music is now better appreciated in England than was formerly the case. His beautiful Andante, which he called "Consolation," is well worth sound study; note especially the beauty of the introduction, with its mournful violoncello-like bass. Beethoven's sonatas are too many for mention here, but perhaps one in F Minor, the first of three dedicated to Haydn (Op. 2), and one called the "Sonata Pastorale," may be alluded to as less difficult than others. His lovely Andante in F Major (Op. 35) is well known. Less generally so is Mendelssohn's spirited "Chant d'Amour," arranged for the piano by Stephen Heller. "Six Songs arranged for the Pianoforte" (Op. 23), by Sterndale Bennett, are peculiarly graceful little bits, and never was there a more capricious *capriccio* than his Op. 2. Heller's "Restless Nights" have gained, and justly, a great popularity. Schubert's "Moments Musicaux;" Mozart's Rondos, Concertos, and Sonatas; Chopin's delicate and fanciful Nottornos; Mendelssohn's Lieder; Sebastian Bach's Gavottes, Sarabandes, Gigues, and immortal Fugues—the list might be continued *ad infinitum*.

And page after page might be written, by those qualified to do it, upon the variety of excellence in the great masters. Handel's music—which Beethoven placed above all others—is so simple in its sublimity that, played by a child's weak fingers, it still delights us; and Mozart's sweet melodies are lovely without the enrichment of orchestral combinations. The same must not be said of Beethoven's, still less of Mendelssohn's pungent, exhilarating music; indeed, Mr. Chorley, in his "Modern Music in Germany," will have it that Mendelssohn's is essentially "manly music, and loses effect beyond that of almost any other of his contemporaries when attempted by female hands." Alas, for the young lovers of the "Lieder"! Let us hope that Mr. Chorley had never heard Madame Clara Schumann when he crushed us with this adverse opinion.

In the same book a good comparison between Bach and Handel is concluded with these words: "We grow into love with Bach as a curious and recondite author, who is also manly, noble, intelligent, and abundant in thought; but we begin in love with Handel, and, as we go on, our love expands in our appreciation of his richness, variety, simplicity, and the colossal sublimity of result, which no comparison can make less, which no novelty can cast into shade."

Nowadays we meet with a great deal of amateur playing upon organs and harmoniums. The more correctly any one plays the piano, the more fitted she will be to play the organ; but it should be remembered that there is a speciality about the instrument, and everything connected with it, which no one will know by instinct, and therefore that it is most important before attempting it to have lessons from a good organist. Two, even, are better than none, and worth a dozen from a second-rate master, and would, at any rate, set the pupil to work in the right groove. Pianoforte players are apt not to strike chords exactly together, an objectionable habit on the pianoforte, but absolutely nauseous on the organ. On the other hand, they play it too *staccato*, taking up the fingers, whereas continuity is wanted on the organ, and a sliding movement of the fingers is necessary.

It is in vain to attempt to write rules for singing: here, too, good instruction is equally necessary. The advantage of singing at sight has been spoken of, and all voices should be cultivated, so as to enable them, at all events, to take part in glees and choruses with precision and correctness, in which case the feeblest voice may do good service. Tricks in taking breath, or drawing one note into another, can be only guarded against by a good master. But one word of petition for a clear pronunciation, whatever be the language of the song; another in favour of good English music, instead of Italian *scenas*, which depend upon their charm of execution, and which only an accomplished singer can make bearable; and a third against either a too great eagerness or an affected unwillingness to sing.

If the love of display creeps in, love of music is at an end.

There is something more in music than a sound, however lovely—some mysterious communication between the harmony which strikes the ear and the never-dying soul within us, ever craving for the perfection for which it was created—some link between us and Heaven.

“Ye golden streams from purer worlds o’erflowing,  
Musical sounds! in you a language lies  
Which speaks of God’s eternal harmonies  
In secret Providence around us going.”

Many matters connected with the subject have not been touched upon, because they will be found to greater advantage in the following selection from the terse golden rules of Robert Schumann, the German composer, so admirable, so high-minded, that they cannot be too deeply impressed upon every one who desires to be a musician:

“Diligently play the scales and other exercises for the fingers. But there are people who believe they shall gain everything by continuing year after year to spend many hours a day in mechanical exercises. It is as much as if any one were to employ himself in trying every day to repeat the alphabet faster and faster. Spend your time better.

“Play in time. The playing of many performers is like the walk of an intoxicated person. Never take such for your patterns.

“Learn betimes the fundamental laws of harmony.

“Do not be frightened by the words ‘theory,’ ‘counterpoint,’ ‘thorough bass,’ &c. The names will become pleasant to you when you do the things.

"Never jingle over the keys. Always play with spirit, and never do a piece by halves.

"To drag and to hurry are equally great faults.

"Endeavour to play easy pieces correctly and pleasantly: it is better than to do more difficult ones half well.

"Always play upon a well tuned instrument.

"You must not only know your pieces with your fingers, but be able to sing them to yourself without the piano. Cultivate the power of representing them in your mind, so that you may be able to keep in your memory not only the melody of a composition, but the harmony belonging to it.

"Take pains, even if you have but little voice, to sing from notes without the aid of an instrument. But if you have a good clear voice, do not delay a moment to cultivate it. Consider it as the fairest gift (of the kind) which your Creator has bestowed on you.

"You must make it your aim to understand a piece of music on reading it on the paper.

"When you play, do not trouble yourself about who is listening to you.

"Always play as if a master were listening to you.

"When any one puts before you a piece of music for the first time to play, read it over first.

"If you have done your daily task of music and feel tired, do not force yourself to do more. It is better to rest than to work without freshness and pleasure.

"When you are older, do not play anything of an inferior kind. Time is precious. We should want a hundred lives only to learn even what is good.

"Fed upon sweetmeats, cakes, and sugar-plums, no child will become a healthy man. Like the food for the body, so must that for the mind be, simple and sustaining. There are masters who have sufficiently provided such food: keep to this.

"In such things as change with time and fashion, skill is only valuable as it serves higher purposes.

"Never help to spread bad compositions; on the contrary, do all you can to repress them. You should neither play bad compositions nor hear them, unless obliged to do so. Look upon it as something shameful to alter or leave out anything in the works of good composers, or to put in any new-fashioned ornaments. It is the greatest insult you can offer to art.

"By degrees you should learn to know all the more remarkable works of all good masters.

"Do not be misled by the approbation often obtained by so-called great virtuosos. Let the approbation of masters in the art be more valuable to you than that of the greatest multitude.

"All that is fashionable will again become unfashionable, and if you grow up in adherence to fashion, you will become what no one will esteem.

"Much playing in company does more harm than good. Consider those to whom you play, but never play anything of which in your inmost mind you would be ashamed.

"Omit no opportunity of playing with others in duets, trios, &c.; also often accompany singers.

"If all were to play first violin, we could have no orchestra, therefore esteem every musician in his own place.

"Play diligently the fugues of good masters; above all, of Sebastian Bach. Thus you will surely become a skilful musician.

"Among your companions seek out those who know more than you do.

"The study of musical history, together with the actual hearing of the master works of different epochs, will cure you the most speedily of self-conceit and vanity.

"If you are passing a church and hear an organ within, go in and listen.

"Lose no opportunity of practising on the organ. There is no instrument which so speedily revenges itself for impurity and false taste, both in harmony and execution, as the organ.

"Sing diligently in chorus, taking the middle parts. This makes you musical.

"But what is it to be musical? You are not so if you anxiously keep your eyes fixed on the notes, and laboriously play to the end of the piece; if you stick fast, and cannot go on, if any one should turn two pages at once. But you are so, if in a new piece you can in some degree imagine what will come next, and can play by heart one that you know. In short, if you have music, not only in your fingers, but in your head and heart.

"But how does one become musical? The chief things necessary — a keen ear, a quick perception — come, like all things, from above. But the gift may be cultivated and increased. You will not do this if you shut yourself up all day alone in mechanical studies, but if you occupy yourself in living performance of various music, much frequenting choirs and orchestras.

"Make yourself betimes well acquainted with the compass of the human voice in its four chief parts: listen, that is, to them in choral singing, and observe in what intervals lie their greatest power, and where they are delicate or weak.

"Listen diligently to all national songs; they are a treasury of beautiful melodies, and open to you a view of the character of different nations.

"Accustom yourself early to read the old keys, otherwise many treasures of the past will remain closed to you.

"Carefully observe the tone and character of different instruments. Endeavour to impress upon your ear the peculiar *colour* of the tone of each.

"Reverence greatly the old, but bring also a warm heart to the new.

"Cherish no prejudice against names unknown to you.

"Do not judge of a composition on first hearing it: what pleases you at the first moment is not always the best. Masters must be studied. Many things will only become clear to you in your ripest age.

"'Melody' is the war-cry of *dilettanti*, and, doubtless, music without melody is no music. But understand well what they mean by it. They only understand as such a light, easy, rhyming one. But there are others of another sort, and when you open Bach, Mozart, Beethoven, they shine upon you in a thousand ways. It is to be hoped that the dry sameness of the later Italian opera melodies will soon grow wearisome to you.

"It is good to seek out for yourself little melodies at the piano, but if they ever come to you of themselves when you are not at the piano, rejoice still more, for then the mind of sound stirs within you. The fingers must do what the mind wills, not *vice versa*."

"If you begin to compose, do it all in your head; then, when you have something ready, try it at the instrument. If your music comes from within you, and you feel it, it will act thus upon others."

"If Heaven has bestowed upon you a lively fancy, you will often sit at the instrument as if enchained, desiring to utter your inmost feelings in harmonious sounds; and you will perhaps feel yourself the more drawn mysteriously within this magic circle, the less clearly you as yet behold the realms of harmony. These are the happiest hours of youth; yet beware, lest you too often give yourself up to an inclination which will lead you to expend power and time upon shadowy images. The possession of actual form, the power of clearly embodying your thoughts, will be gained only by the fixed expressions of writing; therefore write more than you extemporize."

"Be a diligent observer of the affairs of life; attending to other arts and sciences also."

"Without enthusiasm nothing true in art will be effected."

"Not till the form is wholly clear to you will the spirit become clear."

"Perhaps genius only fully understands genius."

"There is no end to learning."

## WATER-COLOUR PAINTING.

It is curious to observe how, in the march of science and art through the world, old-fashioned notions are giving way before them. The school subtleties of the middle ages, based upon refined but unworkable theories, are unhesitatingly chopped down now-a-days with the broad axe carried by a beautiful young lady whose name is Truth. Ever since the brothers Van Eyk made some little noise in the world of art by substituting one gum for another to stick their powder pigments to their panels or their canvases withal, and in order to which change oil was a necessary ingredient, have the little philosophers and critics, so called, in art and dilettantism, been throwing stones at water-colour painting as applied to high art. "It is unsuited to it," they say, but give no reason why. Is water less pure as a vehicle than oil? Are durable colours—pigments—paints, less durable when mixed with the purer element than when mixed with oil? Go to the Pyramids, or to Pompeii, or to the Vatican! Are the frescoes of Raphael and Michael Angelo not works of high art? and are they not painted in water colours? But those pictures, they tell us, were painted on a wall! Is this the condition? we ask; and our fancies revert to the old time, when Cimabue's picture—a water-colour painting—was carried about the city in procession, with all the pomp of glory and the long cry of exultation. "But though it was not painted on a wall, it was painted on linen," say the

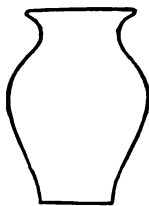
critics. Yes! on linen — on a piece of rag, between which and paper the only difference is in the boiling. And did not the painter-priests of the Pharaohs make pictures more than four thousand years ago in water colours, and on paper (*papyrus*), simply, as now, with washes of colour more or less thin—transparent in parts, in parts opaque, mixed with white? Go to the British Museum and see them. And then go to the Houses of Parliament, and see what water colour has even now achieved in high art.

But to our purpose. We desire to paint pictures. How are we to proceed? How have painters proceeded?

It is presumed that our fair searchers after art have cast away, or have left unattended to, that old-fashioned notion about taste or no taste for drawing. As well might it be argued that Master Jones, or Brown, or Robinson had “no taste” for writing, and that, therefore, it was useless to try. The first man—whoever he might have been—who first tried to write, tried to draw, and did both by one effort. Everybody should know how to draw—the archbishop and the postboy, the countess and the kitchenmaid. To learn to draw is to learn to think. Drawing is an expression of our thoughts. If you were to attempt to describe by talking for an hour or a day, you could not tell the exact shape of such a mountain, though one instant might suffice for drawing it. You could not describe in words the exact shape of a capital A, but you could draw it in less than a second, and so easily, too: and why? Practice has given you the power. You can draw all the letters, great and small: practice has done it—taste would never have done it.

What, then, if we try to draw the forms of other things as well as letters? A vase or pitcher is no more difficult to draw than the first letter of its name, only that we are more accustomed to draw the letter than the other object.

Let us try, then, some simple form :



It may be an antique Greek vase, or it may be a pot of marmalade. It is not in reality more difficult to draw than the letter M.

But you cannot see into it; it does not appear to be round; you cannot tell what size it is. True, but these are further steps, and very easy of ascent.

There is good drawing and bad drawing in the alphabet—good writing and bad writing: the one is easily read, the other not. And, by the way,



it is to be wished that our governesses and teachers of writing would try and infuse such sort of *taste*—or fashion, if you like—into young ladies' ideas of the shapes of letters as to make them less difficult to read.

The appreciation of what is beautiful in Nature is the basis of the power of expressing it; and in proportion to this power, so will the appreciation increase, and so will the pleasure common to both grow reciprocally.

Imitation—pictorial imitation—is what we mean here by the power of expression: literally drawing from Nature, from things, be they what they may.

A fine historical picture is a well-chosen collection of things—men and women amongst them—cleverly imitated; the subtlest and most difficult part of the business being the expression of different distances, or spaces, between object and object, or their colour, size, and aspect under the circumstances of their distribution. But we will not trouble ourselves with these niceties at present, but make a commencement at once, taking a single object to begin upon.

You are to make it look *like*; simply to imitate its *appearance* on a piece of flat paper; to make that appear to project, which, in truth, is a flat surface.

To do this your available means are: 1. Outline (of which more by and bye), which includes foreshortening, or perspective appearance of receding sides of your object. 2. Light and shade (of which, also, more by and bye). 3. Colour—simple local colour, and colour as altered by circumstances of light and position.

But first, it may be asked, can you draw? You can write tolerably; but to do this you were obliged, at first, to resort to straight strokes, then to pot-hooks and hangers, as they are facetiously called. Well, it is enough. You could early express straight lines and curved lines; but there is this difference in the matter, for by drawing, so called, you are expected to be able—a very simple requirement, you will perhaps think—to draw straight lines in any or every given direction, as long or as short as necessary, and your curves as much or as little rounded as required, and in all varieties of undulation. This needs practice; and first, be it remembered, you must be able to appreciate amounts of curvature; for you must have first learned to see them aright. Every one fancies that he or she can at any rate *see* these differences. It is otherwise, however; and it is not a little curious to observe how—without the practice of drawing—we have through our lives been in the habit of looking at, *without seeing*, the simplest shapes.

The eye has to be educated first, or rather *during* the process of the hand. Taste will not do this, but practice will.

The first condition—the power of simply drawing lines—being disposed of, we now come to the perspective differences of sides, or turned-away parts. Here, notwithstanding all the *taste* you may suppose yourself to be imbued with, you will most assuredly be at fault. You are not aware how easily your eye is deceived. The eye *must* be educated. Many, many failures will instruct it. Draw all your tea service, and then you may be able to draw a cup and saucer.

Secondly, we come to light and shade simply, or the consideration of



PAINTING IN WATER-COLOURS



portions of your object which are more or less directly turned towards or facing the light, and those which are turned away from it, or which are therefore in shade.

Those parts which are most illuminated are those which, *whether hollows or projections*, more immediately face the light; and in proportion as they turn away or recede, more or less, by position, will they be darker — not in shadow, but less lighted. The parts or sides which by their position receive none of the real light, will nevertheless have reflected light, coming, as a general rule, from the opposite direction. A constant mistake is the making such reflected light too bright. It must ever be borne in mind that it is only a modification of shadow, and cannot come up to the brightness of any portion of the real light.

This light and shade of an object may be produced with chalk of any sort, or with black lead pencil, or it may be washed in with sepia, or black, or any dark colour. The colour may be used simply in lighter or darker washes or patches, or mixed with white, more or less, according to the amount of lighter or darker tint required for the different parts. It may also, having been carried to a certain depth by this last mode, be deepened by glazing, so called, of a dark transparent colour, used more or less thickly by the use of more or less fluid—water. The first-named method is that most usually resorted to. The chalk or pencil manipulation is a series of lines crossing each other in lighter or darker strokes according to the depth required. It may be highly finished by frequent over-working, as well as by after dots or touches, where required to give more finish or more power. It may be remarked that more brilliancy is produced when the lines of shading are sweeping, and not too close together; the crossings of the lines leaving interstices, which, touched upon only, not wholly covered up, give variety and play of surface, more agreeable to the eye than a monotonous filled-up tint. The lines of shading used are of two kinds: the one having curved inclinations, according to the form of the surface to be expressed by them; their beginnings and endings soft and light, by less pressure; the body or middle parts darker by greater pressure, increasing or decreasing in strength. Or where squared or rugged forms — as in landscapes, old buildings, rocks, and such things—are represented, lines of a quite different character may be resorted to—lines beginning light and ending suddenly darker, accentuated rather; and if preferred, a light returning line from the end of one to the commencement of the next stroke, similar to the up-stroke in writing. The pressure in this sort of shading should be such as to effect the depth required at once, repetition being in most cases unnecessary. There is the appearance of much mastery and confidence in such free handling, but it is unsuited to rounded surfaces and softened finish.

Of finishing or shading much with either chalk or pencil, it should be borne in mind that, however fascinating it may be, it is only a means to an end; a too long continuance of its practice tends by habit to satisfy of itself, and blunt the power of appreciating colour to a great extent, all beautiful varieties and gradations of which it takes the place of, and the eye is as it were content to do without them, or rather seeks not to observe them.

We are thus brought to the gates of the painter's Paradise—colour. We are now to use pigments—paints; and with them and a brush we have to imitate what is before us for our first attempt.

Our writing-master has instructed us in the way in which we should hold our pen. Now, in painting, this is just *not* the way in which we should hold the brush. This remark is made partly in reference to the habit which is of course acquired in writing, which *is* a habit, and has to be counteracted. But how ought we, then, to hold our brushes? To which the answer is, "Any or every way," according to circumstances. Some half-century or more ago water-colour paintings were called "washed drawings." Thin fluid tints were spread or washed over the surface of the outlined drawing with what was then called a *camel's-hair pencil*; but "*nous avons changé tout cela*," and brushes are now made of a much stiffer material—sable, dark sable or red sable, and sometimes goat's hair and hog's hair. We employ sometimes the point of the brush, sometimes the heel as it is called, or that portion which is nearest to its junction with the quill or metal. We have sometimes to spread the colour tenderly and evenly; sometimes to put it on in patches, with an accent or varied pressure; sometimes to scrub it as it were into the roughnesses of the paper with considerable force; sometimes to pass it with a sidelong movement lightly over parts, allowing the colour to lodge on the projections of surface—this is technically called a *drag*. Sometimes we thrust the brush upward or downward, or otherwise, as the case may be. It will be evident that to do all these we must hold the brush in all sorts of ways. We use the paint very thin or very thick; with a brush sometimes fully charged, sometimes scantily supplied. Our colours—pigments—are now prepared, like those of the oil painter, in tubes or in pans, and we have no longer the trouble of rubbing on a palette or saucer a small amount at the moment of requirement—an operation which almost precludes the possibility of rich pulpy touches in the fulness of impulse or first intention.

But the object of our probation is before us. We have drawn its form with a black lead pencil, have attended carefully to its perspective differences, and are now to unite light and shade with colour in one act, and produce a likeness of the object. The drawing first its shape with a pencil, is here advocated as a means of less difficulty rather than as an actual necessity. If we could paint at once up to the just boundary without a guiding line, it would be no doubt the way Nature suggests, for in Nature there is no outline; many painters do this moreover; but as a pre-considered delineation of form, expressed by light tender lines, must render the laying on of the paint easier, as freeing the mind to a certain extent from hesitation as to how far to carry such or such a tint, it is advisable to adopt it.

Perhaps the first question we ask ourselves will be—what colour are we to use? What colour is the thing we have to paint?

It might seem that the second of these questions must be superfluous, seeing that we have the thing before our eyes. Try the question before you make up your mind to the answer. There are subtleties in colour of which you have not perhaps dreamed. What colour, for instance, is a boiled leg

of mutton? Ask the cook, and she cannot tell you, though she has just dished it up and it is before her eyes. Now, the fact is that she has never entertained any idea of what the colour of a boiled leg of mutton might be. And you, fair and gentle art student, who have passed along many a flowery pathway, have never once paused to consider what were the forms, what the colours, of all these beautiful flowers. Do so for the future, and you will be learning to paint and learning to think at the same time, and must feel pleasure in both. The painter enjoys life more than you wot of through his mental as well as his actual practice.

But once more to our purpose, for which we have chosen a single object: not a flower we may have seen, perhaps have gathered—though a flower would answer our purpose—but the simple vessel we might have placed it in.

Presumed, then, that we have such before us for our essay. Now, our first consideration is, naturally, what colour is it? It is not red, it is not yellow, it is not blue; neither is it orange, nor green, nor purple. What is left, then, but grey?—brown being a modified grey, a degraded or reduced orange—orange to which is added a little of the third colour, blue. Brown, thus produced by mixture, naturally or artificially, is a neutral or tertiary colour. Purple appears by night, when lighted by the *yellow* light of a candle or lamp, simply brown, in the same way that blue is mistaken for green by candlelight. Red is not so palpably or so evidently affected by the colour of the light, but it is affected nevertheless, and thus becomes by lamp or candlelight more orange-coloured. Brown is sold to us by the colourman as a pigment under such name, but it has no place, as so designated, in the theory of colour. This brings us, then, into the consideration of colour as a theory, upon which we will enter at once, and lay it briefly before you.

Be it remarked that colour is but a sensation of the brain. We know of colours only as we know of vinegar or of sugar, by the sensation they produce upon us; or perhaps more intimately by a comparison of the sensation of sound as musical notes upon the ear.

It is an established fact that there are but three known colours—simple, uncombined—in Nature. They are red, yellow, and blue, and are called *primary* colours. Take any two of these and mix them, and a *secondary* colour is derived; say, for instance, red and yellow, which, when combined, give orange. Yellow and blue make green. Blue and red make purple. Thus the three secondary colours are produced. If we mix all the three primary colours together, black will be the result; or in a reduced scale—that is to say, more thinly used—grey. Of course it must be borne in mind that the three colours must be in equal powers, according to a known and fixed law. Thus, numerically speaking, or in just proportion to each other, red bears the value five, yellow three, while blue is valued at eight, or as much as the other two together. Now, the colours are to be taken according to their intensities, or that shade or depth of each which produces its fullest force or realization of tint. Thus yellow will be yellowest when we lay it on moderately thin; for were we to use it very thick, it would lose its character

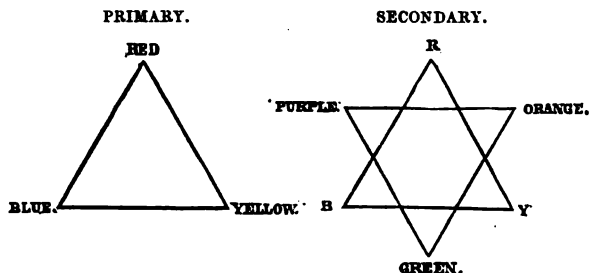
of yellowness, and become brown, by being too dark. Of course we are now speaking of transparent colour only; opaque colour would not be affected by loading on, when already laid thickly enough to arrive at its full tone of colour. The difference of opaque colour will be treated of further on.

Of the other two colours, red has its fullest value in half-tint, or when moderately used. Blue may be more intense, but still not laid so thickly as to approach blackness—though this will require further remark.

The secondary colours are, as we have said, formed of two of the primaries combined, as the tertiary colours are of the three; and according as more or less of one or another colour enters into the combination, so will the tint be affected, though in all cases it will still be grey—it may be a blue grey, or it may be a red grey, or it may be a yellow grey, approaching, in fact, to what is called brown.

These greys are sometimes called by the scientific in these matters, russet, citrine, and olive; but we will adhere, if you please, to the better-known term, grey.

Each primary colour has its complementary colour in the other two mixed together. Thus, as the diagram shows, for the primary red, the yellow and



blue combined form the complementary green, which, in the double triangle here given, is opposite to the first colour, red; as in the combination of blue and red, which produces purple, we have the complementary of yellow; and in the union of red and yellow, making orange-colour, the complementary of blue. Of course it will be evident that the complementary of the mixed or secondary colours will be, reciprocally, the primaries themselves.

In practice, then, we are sure of harmony of tint in carrying out these simple laws: a portion of a picture coloured blue, placed next or approximate to a portion painted of an orange tint, must of necessity be agreeable to the eye; as must a purple being juxtaposed to a yellow, or a green to a red. Of this, however, more anon.

We come now to the like laws with reference to the tertiaries.

This, it will be seen, is but the carrying on of the same laws in a reduced scale of colour.

We may calculate the tints numerically, according to the several values

of the different colours, as stated already; but the eye will do it naturally, as the quality of each grey will show a greater amount of one or the other colour in its hue. A red grey, for instance, will be naturally seen to be complementary to a green; a blue grey to an orange; a yellow grey to a purple.

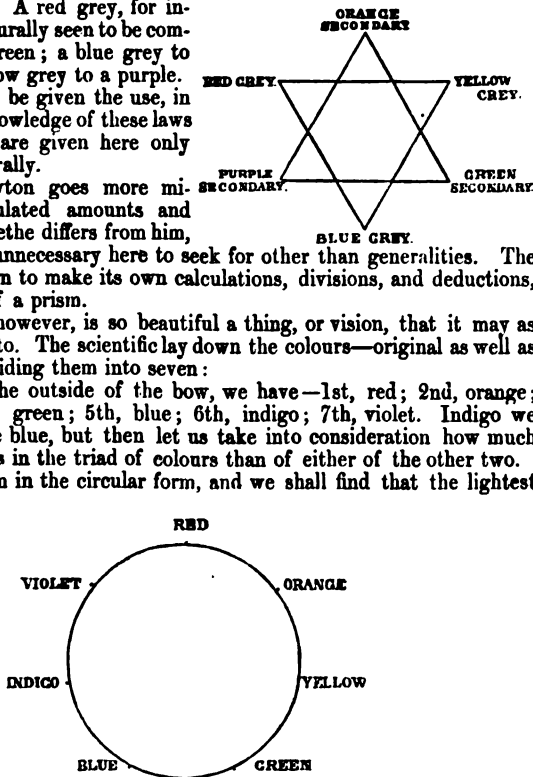
Further on will be given the use, in practice, of the knowledge of these laws of colour, which are given here only broadly and generally.

Sir Isaac Newton goes more minutely into calculated amounts and variations, but Goethe differs from him, and it would be unnecessary here to seek for other than generalities. The eye will soon learn to make its own calculations, divisions, and deductions, without the aid of a prism.

The rainbow, however, is so beautiful a thing, or vision, that it may as well be adverted to. The scientific lay down the colours—original as well as mixed—thus, dividing them into seven:

Beginning on the outside of the bow, we have—1st, red; 2nd, orange; 3rd, yellow; 4th, green; 5th, blue; 6th, indigo; 7th, violet. Indigo we must admit to be blue, but then let us take into consideration how much more blue there is in the triad of colours than of either of the other two.

Let us try them in the circular form, and we shall find that the lightest



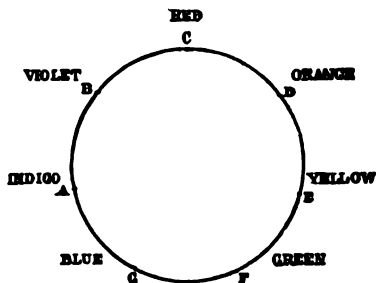
colour, yellow, takes its place as high light, while its opposite in situation takes that of deepest shade—indigo. We cannot help feeling that this is a natural arrangement.

Now let us try sounds, or musical notes, as if they were colours, in corroboration, and in the same circular form. We begin with red, of course, which may represent the tonic or key-note—say C—in the natural key; whether minor or major, we will not trouble ourselves now.

Try on your pianoforte how sweetly the third and the fifth harmonize with the tonic, and so complete the common chord. And look, or listen to,



how the seventh glides into the key-note, as the violet or purple does into the red.



This, however, is fancy or speculation; let us return to stern and undeniable fact.

Chevreul, a modern French writer on art, says, and truly, "When two tones of the same colour are juxtaposed"—laid side by side or next to each other—"the light colour will appear lighter and the dark colour darker." This applies in respect to light and dark; but the same will obtain in reference to *different* colours; thus a blue placed next to an orange will have the effect of giving power to both, for the orange will be more positively orange and the blue more positively blue, by what he—Chevreul—calls simultaneous contrast. The same holds with neutrals or tertiaries, contrasted with primaries or secondaries. A red scroll or pattern on any very dark ground—say black—would appear light, while the same tint of red on a very light or white ground would appear much darker. Any colour in juxtaposition with its complementary must be heightened by such position, as must the complementary, reciprocally, in the same degree by the primary which is *its* complementary.

Thus far on a flat ground; but though our picture is, to all intents and purposes, a flat ground, it is supposed to represent objects which are *not* flat, but which project, and in their projections receive various amounts both of light and of shade, altering very materially their conditions of local colour.

Remember that "we can never hope to colour up to the brilliancy of Nature," where real light and real shadow, on actually projecting bodies, must ever outdo every effort of the painter to realize, however much he may exaggerate, when he has but a flat surface to represent it upon—a flat surface which, be it remembered, *must* be in light to be seen, but yet not in high light—that is to say, light coming directly at a right angle, for then it would be but imperfectly seen, any more than were it in deep shadow. Thus, then, the parts represented as in shadow, and the parts represented in high light, are both at once to be seen under the influence of half-light; so that *black*, for instance, as a portion of a dress in shadow, can, at the darkest, be rendered only by a black pigment *actually in light*, while, on the other hand, the parts of the same black dress, supposing it to be silk or any

shining material, can only be rendered by light black, so to call it, or in other words, grey, while in truth it is, on account of its luminous quality, actually lighter than white. This may at first appear overstrained: but to give another example, let us suppose a roll of black woollen cloth; a part of the roll is turned towards the light, but it *is* black; let us now paint a stripe of black on our canvas or paper, in colour which shall not shine when dry. To make it like the cloth, we have painted it as black as we could. Put the cloth and the black painted portion into the same position as to light; both will be black *seen in light*. Now shade your black, *if you can*, and make the shade represent the portion of the black roll which is in shadow, being turned from the light. Now, can you represent this effect better than by exaggerating the light side? or have you, indeed, any other means of rendering it?

Having thus very briefly and in a general way stated the laws which govern colour as a sensation, we return to the subject of our practice, where, as well as our sensations of colour, we are to use materials that shall set them forth—pigments, paints, ground up by the artist's colourman ready for our use.

We have, as already presumed, an object for our imitation, a simple earthen vessel. How do we proceed to represent it, in its light, and shade, and colour at the same time?

We have imitated its shape with light lines of a black lead pencil; we have attended particularly to its form, *as it appears to us*, in its perspective curves.

Before proceeding to paint the object, we may as well consider what will best form its background. There may happen to be an accumulation of things behind it, ill suited to a good effect, or too complicated, or too light, or too dark. You have always the means of altering this, by placing something else—a curtain or a cloth—turned towards or away from the light from the window, according as you need it lighter or darker for your purpose.

The best way will be to paint this background in first, taking care that you paint carefully up to, and not over, the outline you have drawn.

Now, what colour is your object, or rather what colour does it appear to you to be? It is darker on the side farthest removed from the window—from the light. Its local colour, its general colour, is grey, we will suppose, though it might have been red, or yellow, or green, or any colour; but this one we suppose grey. It is not, however, the same grey on the light side as on the dark side. We know what grey is, what grey *must* be, for it is a tertiary colour, and formed therefore of red, yellow, and blue, somehow or other combined. Let us take Indian red and yellow ochre and cobalt blue mixed together: perhaps the mixture may be too blue; what then? add more of the other two; or it may not be blue enough, and needs *more* blue. You lay the colour on, using the brush, as already described, according to the surface you have to represent, smooth or granulated, even or undulatory. Practice soon gives you the power to express these differences. The colour you have painted on is that of the light side, and you have put the colour on thinly, that it *may* be light. If it is not dark enough, however, let it dry,

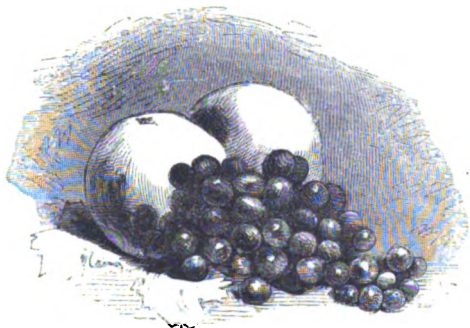
and repeat the tint. This then is so far right—it is the colour of the vessel; but you have to make it darker on the shaded side. You will perhaps say, “Put more of the same colour over it, to make it darker.” This *would* make it darker, it is true, and would shade it into the appearance of roundness; but be it observed that the *character* of colour—independently of its difference in depth—is not the same on the lighted side as on the side in shadow. Bear in mind, then, this simple fact, that it will depend upon the colour of the light, what the colour of the shade will be; the one being the opposite of the other—its complementary, in fact, in a modified form. When the colour of the light is cool or bluish, as is ordinarily the case when simple diffused daylight, not absolute *sunshine*, comes in at a window, then the colour of the shade is warm, or inclining to an orange tint. Of course this is modified by the local or natural colour of the object itself, so lighted. If, on the contrary, an object be lighted by an evening sun, the part so lighted will be warm, and then the shadow side will be cool. Well! we have now to shade our grey jar. Its light side is cool, so we take for its shaded side more yellow as well as more depth, but the chiefest point of depth will be of a hue intermediate between the two extremes of cool and warm. The rounding, or shading, is done partly by putting on more or less colour by the action of the brush, which practice will give the power of doing; or by hatching, as it is called—lines crossed lozenge fashion; or by small patches of colour, imperceptibly changed in hue as approaching the darker or lighter sides. The highest light may be wiped out with a piece of rag, the intended spot of light being first moistened with water; or if body-colour is used, a little spot of white slightly tinted as requisite will effect it. But the darkest part of your pictured object will not be that most remote from the light, any more than will the lightest part be at the other edge, but at points intermediate: look at the object, and see where reflected light on the extreme of the dark side will complete your picture. What colour that reflected light will be must depend upon what coloured articles happen to be present to throw back on your object their own hues; but their colour will be, in a general way, warm—say yellow ochre, or some such colour.

Well, we have finished our essay piece. “It is very dull and very grey,” you are heard to say. True, it is grey, but dull it should *not* be; nor will such be the case when your hand and your eye are more experienced: and remember that there would be no bright colours were there no dull ones to contrast them with.

But let us try, now, another picture, of brighter coloured materials. What say you to a couple of rosy apples and a bunch of purple grapes?

Now, in the world of art there is such a thing as composition. Composition, by the way, has been for centuries the bugbear of art. It is what anybody can talk about, whether knowing anything about art or not. It is for the most part mere assertion, baseless, or founded on fancy; and fancy, like fashion, is a very quicksand. The pyramid and the circle were the favourite slang words of dilettantism, for a long period, in reference to composition. The old Greeks, it is true, had a sort of pyramidal form for

their compositions or groups of sculptured figures, as those of the Parthenon or the more ancient marbles of *Ægina*. But then there was a reason for the form of the group: it was to fill a prescribed form of space—the pediment of a temple. The old Byzantine or Mediæval painters simply filled up the spaces left for them to paint upon, and troubled themselves not about composition further than carrying out the ecclesiastical laws for the places of the Saviour, St. Peter, St. John, and so forth. If they had a number of figures to paint on a wall, their idea of composition was generally this: they began at one end and painted till they got to the other, and then began again with another row beneath them, as we do with words in our letters, or as the old Egyptians did with their hieroglyphics, and, like them, they found it sometimes necessary to make the line from top to bottom, as surface suggested. It was a certain pictorial writing of a subject or history. True it is that Raphael and others carried their ideas of composition into forms varying according to their fancies at the time.



There is, however, a composition, apart from all this, and which is based upon a law of Nature—an unalterable law of vision; the fact simply that what we direct our view to, what we concentrate the visual focus upon, must be, for the time being, the principal object or point of our picture, or what is before us, as impressed on the retina. Now, as we would wish to look at the principal part, and would wish, moreover, to make that part appear to others as principal, when they looked at our picture, so we may very naturally take artificial means to effect our desire. The ancients made the principal figure the largest in their pictures, and placed it always in the very centre, to this intent. The moderns frequently work to this intent by making the brightest light, or the strongest dark, or a centreing of both, their principal point, and that not far removed from the middle of the picture. And this brings us back to our grapes and apples, where we shall carry out such ideas of composition.

Let the arrangement, then, be something like the engraving above. It shall be a small bunch of grapes, for we do not want too much dark.

First, then, let the background be not too dark nor too light—grey, moderate; that is to say, not having too much colour, but just enough to make the colour of the objects preponderate *as* colour, and *as* dark, and *as* light—no part being so dark as the dark part of the grapes, nor so light as the light part of the apples. The brightest place will be at, or near, the centre of the picture—where the high light on the light yellow of the nearer apple occurs. The darkest place will be close upon this lightest place, and thus we have a point of strongest contrast on this focus of the picture. The apples are yellow, greenish in parts, rounded by shadow, and streaked with red. The grapes are purple, positive and deep in parts, in others tender and blue.

Now let us revert to those primaries, secondaries, and tertiaries; they may be useful to us here. Independently of the focus produced by the powerful contrast of very dark and very light, we have yet an additional power in the difference of colour. The apple in its lightest part is the primary *yellow*; its complementary is *purple*; and this we have in its fullest degree in the grapes. Each is, as already proved, enhanced in brilliancy by the other, as any tint is rendered more beautiful and more powerful by the immediate proximity of its complementary. Now, how do we proceed to paint these things? The background we have already painted. For the apples you have yellow, the new colour aureolin, or gamboge, or Indian yellow, or even lemon yellow, though this is somewhat more difficult to manipulate with. The yellow washed on, you proceed to shade it. If you have washed or tinted the yellow strongly enough over the shadow sides of the apples, the colour, yellow, will be seen through, and thus added to the colour you wash over it as its *shade tint*, which by law would be the opposite of yellow, its complementary, *purple*. This purple would be modified, of course, as need required, but it would be the colour to make use of in rounding off or shading the apples. The light comes in through a window, it is presumed, so that the conditions are the same in regard to light as in the last case. It comes from the left hand, which makes the darkest sides of the apples, as well as the grapes, on the right side. The reflected light on the apples is subject to the same conditions as before. Some real light will come *through* the transparent grapes—but we must not enter on these niceties at present. The grapes will have many varieties of richness in their depths—purple, rich deep red, and even amber; but there will be a great deal of light colour on the lighted sides, dependent upon their position with respect to the light, as well as upon the bloom upon their surfaces, which may be light blue, even greenish in quality; but you must practise your eye to observe the subtle differences and tender varieties of colour, as exhibited in objects before you. The apples are streaked and stained with red, more or less. It will be as well to use lake or carmine for this, as it will be easier to manage than madder, though less durable. Of course, these stains or streaks of red are to be more or less strong in colour, according to their circumstances of position. You must not omit to observe the blueish high light from the sky on both the apples. The apple farthest off or removed from the focus of the picture will be purposely darker than the other, both for variety's sake and for effect.

The amount and varieties of the three primary colours will be evident in this picture. Look observantly, and judge for yourself.

"I have nothing to draw," is the almost constant reply to the question asked by a master of a young lady pupil; "there is nothing pretty in the neighbourhood of our place." Where, in the whole world, can that be? what place is it that has nothing to draw? Look out at the window, in at the door—everywhere, anywhere—and there is something to draw, surely. You have beautiful furniture, beautiful flowers, beautiful trees; and the fields, and the hills, and the brooks are beautiful; the skies are beautiful. The same beautiful clouds which sail over your meadows, sailed also over Turner's dingy-looking house in Queen Anne Street. The world is all before you what to choose, and dotted all over with subjects.

When Maclise painted his magnificent "Death of Nelson," he painted guns and ropes, and swivels and blocks, and made them all beautiful, because they were all beautifully painted, and looked like the things. Landseer painted a hat and gloves, and it was beautiful. *You* have, it is not to be doubted, a beautiful hat, with, perhaps, beautiful feathers in it; and perhaps also a beautiful shawl, which, thrown carelessly over a chair-back, is a picture in itself; or if you choose to make it thus a background to the hat lying on the seat of the chair, do so. The owner, it is true, might occupy the seat of the chair, the hat on the head, the shawl on the shoulder, and we should thus have a prettier picture doubtless. By-the-bye, a hat is a capital study for drawing practice in the perspective of the eye. If, however, you have the hat on, and are going out at your gate, take pencil, colour-box, and a camp stool with you. The first bank you meet with will give you a subject. Has your village church an old porch? any old doorways? or windows? There are few things better as subjects for imitation, in free drawing, whether with the pencil only or in colour, than an old doorway or window of quaint Gothic or early Norman.

Remember that your mode of drawing such would be materially different from the rule-and-compasses method of the professional architect. The landscape painter, and the figure painter also, makes use of a looser and freer mode of manipulation, and thus he would proceed: His aim is general likeness in effect and breadth, to which end he draws first, very lightly, the general proportions. For picturesqueness' sake he would most likely take his position so as to have an oblique view of it. He would then with a firm touch put in the most telling spots which occur, as dark places, whether perforated apertures or strong-cast shadows. He would take care, however, to mark their places very truly, with a great attention to their perspective positions and directions.

Do you the same: it is not difficult, but requires care; it is very interesting, moreover. If you are afraid to attack the whole church, you may well try its doorway, or one of its windows. Be careful to put no more lines than are absolutely necessary, and those only dark which appear so, as hollows, not edges. Should there happen to be clinging about it a beautiful piece of ivy, draw it leaf by leaf, carefully, not with a scribble.

If you colour it, you will draw it first with your pencil. The rule and

method for your still-life objects comes into practice here, quite in the same way, for you will, no doubt, preserve and express the shining parts of the ivy leaves with such cold touches of grey as they present to your observant eye. If a window, the glass will not be blue, most likely, but dark patches of a greenish grey, such as Vandyke brown and blue mixed together would make, unless the light were so shining upon it as to reflect its brightness, which you could not fail of observing. The stone-work would be, of course, composed of tertiary colours for the most part; but they might be light and bright nevertheless, such brightness being effected by a drag, described before as one manner of manipulation.

Speaking of the glass, we are reminded of the constant practice among architects, of painting it always blue—blue, *because* it is glass. And so of water—blue, *because* it is water. This is a most enduring error, a most perseverent conventionality. The ancient Egyptians made a zigzag for a representation of the ups and downs of the waves, and painted it blue, as the Greeks after them with another form equally conventional, and both have lasted ever



since.

That *some* water is blue to a certain extent there is no doubt—the Mediterranean and some of the lakes, that of Geneva for instance; but it never looks like blue paint. One hears in song of “the blue Moselle,” but nobody ever saw it so. Where the water reflects the blue sky in its wavelets, it will of course appear blue: a patent leather boot would do the same. But these are not the only conventional errors; the stems of trees are frequently painted brown—*because they are wood*—and our mahogany tables and chairs are brown.

It may well be understood that what is commonly called sketching from Nature is a very different thing from *studying* from Nature. In one case a hasty and very free translation is made, and all the appliances and trickery of art are brought to bear in the act. Time enough is not employed, generally speaking, to consider either form or colour, in these sketches; and in place of the truth of either, or both, conventional mannerisms are substituted. Thus a mass of trees is rendered by such a general green tint as is understood to belong to the circumstance of position, whether distant, or in the foreground, or midway between both; the sketcher having his recipe at hand for each. Nor does he give himself the trouble, even if he have the time, to investigate the requirements of his subject according to what Nature has placed before him; trusting to the freedom of handling, which, from force of practice, is ever in his power, to supply the place of a truer representation. Mountains are dyed with a ready-made grey, or they are painted rank blue, for *effect*; and all their tender varieties and air tints united in one broad sweep of colour. The green of the beautiful sward becomes yellow or tawny under the brush of your practised rapid sketcher. He has his purple tints for slate roofs, his various reds for tiled ones; his shadows are the same under every effect of light; he has his “*tint*” for shadows,

his other tints for lights; and when the picture or sketch is finished, it is perhaps a clever spirited performance, dashed in with power and hardihood, and possessing, moreover, that brilliancy of both colour and execution which the eye must, perforce, be smitten with. But, alas! it is a falsehood.

There is another kind of sketching from Nature, the very opposite of this, and wherein the want of power in what is technically called handling—the ready use of the brush—produces a coldness, a dullness, and a want of apparent light and motion, such as the eye may not look upon with delight.

But, though there may be *more* truth in one of these sketches, it is not *the* truth, because it gives us no idea of life or activity. But it is careful, it is pains taking, and in so far it is good. I would advocate this mode as vastly preferable to the other; but the truth, and that is what we love in a picture, as in everything else, lies midway between the two methods.

Let this, then, be your endeavour in studying from Nature: In the first place, gain by practice a sufficient power of expressing with your brush that which you desire to realize; or, at least, so much mechanical power as will keep pace with your feeling and judgment in the appreciation of what you desire to express: a too great facility is dangerous, as being apt to run into the exuberances and conventionalisms I have already alluded to; but enough of it, or a power of handling that frees the mind from the embarrassment of mechanical difficulty, is absolutely necessary.

But here our road forks. There are two ways before us: one goes into the domain of landscape, the other into the fields of humanity—to figure painting. We will take the first, for we have not time for both just now; and as the sunshine calls us into the country, we will walk among hedgerows and wild flowers, and enjoy sweet thoughts about them—pictorial thoughts, so to call them.

We take our colours with us, not forgetting a lead pencil or two, and perchance a couple of compressed paper blocks, one tinted and smooth, the other rougher and white—not too rough, however, for we are not yet able to take advantage of those happy chance touches which a rough surface often produces, and which, judiciously turned to account, give that spontaneity so felicitous as the production of a mind and hand at once accomplished and untrammelled in practice.

If landscape be your aim, then, it will be necessary to make early attempts at foliage, or rather tree drawing. It has been the practice to make, with the black lead pencil, studies of foliage, branches, or portions of trees. This was done, and still is the practice, though not to the extent that once obtained, by the copying, in gradual easy lessons, certain examples of different sorts of touch—the one sort for an oak, the other for an elm, and so on. They were not, however, though very clever studies, truthful imitations of Nature, but certain sorts or qualities of manipulation which were to stand in the place of imitation as a piece of pencilling. Most fascinating, indeed, was and is this mode of rendering tree forms, their light and shade for the most part matters of fancy; the hand in its execution *seeming* to run where it pleased or by chance; and indeed chance had at one time much to do with



it. These studies seemed to be, and to a certain extent were, superior to the over-elaborated pencilling used before that time, or to the very meagre outlines—done in a manner known as soft ground etchings, which lithography has quite superseded—at a period still earlier. It is still, however, a cherished idea that trees are to be done by some sort of trick, or touch, as it is called.

That same word, "touch," is a most dangerous word for art progress, and has done no small amount of mischief in its battles against "truth" of representation, which resides more in general form than in any peculiar touch. To this end your first consideration in regard to a tree should be *its skeleton*, even as the figure painter takes care to become acquainted with that of the human being he portrays. There is a certain law in the growth of most—not all—trees. The landscape painter knows it well by his studies of tree forms made in early spring, or after "the fall of the leaf," when the trunk and branches, their character and growth, denuded of their thick clothing of foliage, are laid bare for his study and close investigation. The natural law, it is observed by Ruskin, is this: that the tree arriving at a certain height, which is dependent upon many and varying circumstances, such as position with respect to other trees, soil, whether opposed or not in the growth of root, exposure to light, to damp, to salt air—indeed, to a thousand circumstances—puts forth its first branch, and is diminished in size in proportion to the size of the branch sent forth. Another branch occurs, and another reduction takes place, and so on to the top. The same law applies to each branch—to the very twig. The leaf itself is said to be an epitome of the same law.

This law is to be taken as a standard only in its broad and general sense,—a law which, like most laws, is proved by its exceptions: so it will be necessary that you judge for yourself, knowing it *as* a law, however.

As to the character of the *general* direction which branches take, you must judge for yourself—their character of angle with the parent stem, upward, or sweeping downward, or horizontal. Some trees are knotty and carbuncled, others fair and even. In some the bendings of the branches are much more sudden and angular than in others. All this you will observe, doubtless. Draw them frequently in outline with your pencil, and your memory will be stored with their characteristics of form. There is one thing, however, which you must early try to get the power of expressing truly. It is the setting on, or rather the outgrowing, of the branch. There is a certain shoulder at its junction, like a man's arm. Young ladies are very apt to fail in this very essential particular of tree drawing, and make the branch look as if it were stuck into the tree as a peg might be, rather than growing out from it. Trees, like other plants, are prone to seek for the light, to shoot upwards, as soon as they can. Thus, a tree growing out of a chink in a rock, or a sloping bank, will very soon bend upwards, and continue the vertical position.

Perhaps it is hardly necessary to remind you that branches grow out of a tree in all directions, all round, towards you and from you, and in all directions. This remark is made from the fact that trees, fir trees in particular,

appear in many a young lady's sketch-book as if they only grew on the right hand and on the left. In respect to the drawing of branches, perspective foreshortening is not to be lost sight of: much will depend upon the position of the horizon. The stems and most of the branches come chiefly into shadow in summer-time, owing to the overhanging foliage; but such must not be painted, as a matter of course, *brown*. Greys, purply greys, and greenish greys are mostly found to be their tint, light or dark.

To describe the colour of their foliage would be impossible, so many and so varied are their tints; not only their own local tints, but their hues at different times of the year, different times of the day, under different effects of light, strong light or gloom, under differences of distance, or whether above the eye or below it.

Different painters use different mixtures for their greens: some paint in a high key, using such colours as lemon yellow and emerald green; others in a sombre key, as those who use Vandyke brown and indigo; others, again, in a grey key, whose tints are chiefly yellow ochre and cobalt. Of all these different manners, all being found among the best works of the best men, who would be bold enough to offer a suggestion of advice? "All depends upon the key," was a favourite expression of Turner's.

The late John Varley went so far as to aver that there was no such thing as green in Nature, though he shortly afterwards compounded a set of three ready-made greens, which were sold and called after his name. It is, however, unwise and dangerous to have such ready-made greens or greys either in your box or at hand, as you may be doubtless tempted to make use of them—rather, let us say, to make them do—for all general purposes of foliage. Mix your greens, then, in imitation of what is before you: the chances are that that will be no close match *when put on to your paper*; for colour, as has been shown, is dependent in a great measure upon what comes next to it: to take a ready-made green, however, is pretty sure to be a mistake.

From early morning to late evening blues and purples are found tempering and modifying the green masses of foliage: in the hollows and dark places the purple clings, and the heaven tint sleeps on the upper surfaces of the sloping beech boughs. Even in the brilliant yellow, orange, and red of autumn, the thin blue atmosphere is there, tempering and sweetening the bright masses.

It has been said that it is hardly safe to suggest colours, or combinations of colours, to use where all is variety, where two leaves are not alike in tint; yet for the tyro it may as well be hinted that yellow, say Indian yellow, mixed with indigo or French blue, and tempered by a little burnt sienna, forms a useful tint, a triad of colour, that may be modified as need requires by more or less of either of the three. Terra verte is a useful colour in itself, quiet in its semi-opacity, used either thinly as a tempering glaze, or thickly in solid touches of separate leaves.

Where light and brilliancy pervade, lemon yellow, combined with a very little emerald green, will give a ground colour of extreme brightness. It requires, however, some tact to abate its gaudiness by touches over-painted.

Emerald green also, with cobalt, used thick, gives a tint for the lighted surfaces of such parts as will bear this amount of colour instead of grey.

Yellow ochre will take the place assuredly of a brighter yellow in retiring or distant trees, when mixed with cobalt, or, if greater strength is required, French blue.

But these catalogues of colours and mixtures are, after all, best found in the lists of the artists' colourmen; for as there are many artists, so are there as many selections of tints, scarcely two using the same combinations or the same modes of applying them. It must, therefore, be left pretty much to your own selection to choose those which will best carry out your intentions of effect or hue; and, be it again remarked, all must depend on the key of colour you adopt for your picture. And so also of manipulation in the rendering of foliage; for such variety is there in the shapes and colours, the setting on and dispositions of leaves, that it is best to adopt for yourself such mode or such touches as will render most truly, according to your own ideas, that which is to be imitated. Leaves of trees present themselves to us in so many shapes—so many differences of such shapes occurring in their foreshortenings, that no rule of individualization can be brought to bear upon the rendering of them. You must, perforce, look for yourself. A little advice may here be offered. It is this. Take a leaf—say a leaf from a linden or lime tree—throw it carelessly down on the table before you, at the distance of two or three feet. Draw it, not too large, and remember its foreshortened appearance.—It is one step towards the painting of a tree that you should be able to paint a leaf.—Give its form, light and shade, and colour, truly. You will be obliged to elaborate it, perhaps—never mind; the next you will be able to do with more freedom. Then take a twig with some half dozen leaves on it. Draw that in the same way. Then take a somewhat larger branch, and, putting it at double the distance from you, imitate *that* also. You will soon be able to paint the whole tree. A looseness or freedom of touch will arise out of this practice most assuredly. Do not forget to observe the *cool* light, where it falls on some portions of the leaves, on their upper surfaces, contrasting with the yellow tints, occurring more particularly where the light passes *through* the leaf in its transparency.

Trees reflected in water will, in most cases, appear darker, because, while we are looking on the lighted upper surfaces of the leaves in the reality, we are, in their reflections, looking at their reversed or *under* sides, which are in shadow.

And now we have to enter upon the circumstance of atmosphere—an important matter for our consideration. We will, if you please, for simplicity's sake, regard atmosphere as a thin film of mist or steam, or, better for our purpose, smoke.

You will possibly call it transparent. It is *not* so. True it is that because of its thinness you can see through it partially, more or less, as we can through very thin paper—tissue paper, for instance, or that called foreign post paper, several sheets of which together would, however, entirely hide the darkest colour. We look at objects in the distance, trees or mountains,

through this film, which we have chosen to consider as smoke; they look lighter in consequence—not lighter in consequence of the distance, but because such amount of this atmosphere or smoke intervenes between us and them.

The white paint—Chinese white—you will admit at once is *not* transparent. Now, were you to paint some distant trees as dark as if they were in the foreground of your picture, and then, when quite dry, pass over them a *thin* layer or wash of Chinese white, the effect of distance, as produced by the intervention of atmosphere, would be produced—produced, too, just as Nature produces her effects of distance; that is, by a certain amount of opacity—for it is opaque in effect and in fact—accumulated between you and the distant objects, and through which you have to look.

It would not be advisable that you should resort to these means of producing, or trying to produce, the effect of distance. It has been partially, though rarely, resorted to even in water colours; but by painters in oil it was a common practice to “scumble,” as it was termed, parts of their pictures to produce such aerial effect. In such cases, however, the thinness of the white pigment was soon overcome by the oleaginous portions rising to the surface, and becoming not only darker but yellower—destruction, therefore, to the effect.

The blue of the sky is the result of this natural interposition of atmosphere. It is the intensity of darkness looked at through so much of this opacity; and in proportion to its amount or thickness, so does the blue sky look lighter. In Italy, and other countries, where less of this misty intervention obtains, the sky is darker; and on the tops of high mountains, for the same reason, the sky approaches to blackness in its intensity.

It is evident, then, that the effect of this thin film of opacity, having *dark* behind it, is to make the dark not only lighter but bluer. When, on the contrary, *light* is behind it, this opaque film appears darker and has a dusky hue, the very opposite of blue—its complimentary, in fact, orange. Let us illustrate it. A kiln or a cottage chimney sends forth its curl of blue smoke, backed by a thick mass of dark pine trees. The smoke is blue. You have doubtless often heard it remarked “How pretty the blue smoke of the cottage chimney was.” Poets have remarked upon it, as well as writers of pretty stories. But the woodman’s axe is heard, and the dark firs are all turned into window-frames, doors, or flooring-boards. What is seen in their stead? The bright sky, in the front of which is the cottage, its chimney still smoking. But what colour does the smoke appear now? A dusky orange; for the light instead of the dark is behind it.

The sun goes down a bright orange-coloured ball. Why is it that colour? The atmosphere thickens, and more of it occurs, as we look *through it horizontally*, at the setting orb. The reason is just the same. Canvass it for yourself.

The full moon is rising. Why, *that* also looks inclined to orange colour. Yes, and for the same reason. When it is higher up, out of the influence of the opaque film, it will be as cold and pure as usual.

And that beautiful golden light! how it pervades through the whole

landscape before us—the houses, the trees, the rocks, the hills, the waters, the very atmosphere itself, every atom of its composition, every speck, every fleck, every tiny drop, every tiny insect that swims in it, is tinged with the same hue. It has reacted upon itself; it has given and received in reciprocation; and thus, blessing and blessed, what follows? Darkness; for all this beauty is decay; it is the swan's fabled song; it is the perfume of the mown grass.

But how shall we render all this glow? Here is indeed a question of difficulty. We cannot of course realize it, but let us make our nearest approach. We have never intended for one moment that our poor pictures shall be taken for the things themselves, or even that they should cheat the eye into the deception that should suppose them to be mistaken for such.

When it is said that the colour of the light, as here described, pervades everything, it is not meant to be inferred that, because everything is imbued with it, there is no light and shadow, or that the natural difference in the colour of the light and dark sides is put out of the question. Not at all! We still adhere to the law which tells us that the lighted side of an object being one colour, yellow for instance, the side in shade would be purple or violet; that the lighted side being orange, the side in shadow would be blue. But this is the case, and this the matter-of-fact reasoning upon it: It is presumed that we are looking towards the horizon, where the sun is setting in its golden brilliancy; its colour, orange yellow. The long, long sweeps of atmosphere, running, as they would appear to do, in horizontal streaks of brilliant yellow, orange, vermilion, carmine, partially across the sun, and resting on the very verge of the horizon, give cause for the colour of the light. Almost all objects then would have their shadow sides towards us, and their colour, the opposite or complementary of that of the lighted side, would be purplish blue. Now, be it remembered that the warm colour of the atmosphere pervading all space between us and the horizon, there must be a portion of it even between us and the nearest object; and in proportion as the objects were farther from us, so much the more of the warm-coloured atmosphere should we have to look through in viewing them; the *greatest* amount being *at* the horizon. Thus all the purplish blue tints would have added to their colour that of the warm tint through which we saw them. This may seem somewhat complicated, but a little *thinking* process will make it easy enough.

Then comes the question, How is all this to be effected *in practice*?

The water-colour painter has here a great advantage over the painter in oil, for he can actually carry out the means which Nature herself adopts. He can lay a tint of colour *over all* his picture, answering to that of the atmosphere, in a general wash of colour, while the oil painter, having to use solid colour for his light tints, must paint them in separately. There are two ways open to the water-colour painter—either to lay this colour first, and *over it* put in the several objects in their purple-blue tints, or he can paint the several objects first in the purple-blue tint, and over them spread the warm colour of the atmosphere; or he can do both, by strengthening each as he finds necessary after the first processes. The warm colour had

better be a transparent one, though not necessarily so, but for the tyro it will be found to be more manageable. Of course the local colours of the objects are to be taken into account, in addition to the two air tints we have spoken of; but of so little account *are* the local colours, under such an effect, that alight tingsings will be all that are necessary, and those will occur chiefly in the foreground. In painting the sky you must remember that the disk of the sun itself must be always lighter, whatever its colour, than the vapours which surround it or through which we see it; though sometimes a streak crosses it, of so dense a quality as to hide altogether the part it passes across. The arrangement of the colours of the sky will be according to the natural order of the system already pointed out. Thus we begin with red, and pass through orange into yellow, then through green, into blue. It is not an uncommon thing to hear persons exclaim that they "never saw a green sky." This is only want of education of the eye: they *have* looked at, *without seeing*, many a green sky—greener, indeed, than they could ever paint it. We have proceeded in the order of colours as we find them in the rainbow; let us follow them in imagination the other way—backwards as it were, or downwards, beginning at the horizon, where the strong red is already showing indications or tingsings of its next neighbour, violet, as "darkness flies away," deepened now into indigo, to rise again in pure blue, as it creeps again through green into the yellow of the early morning. It is a beautiful system, this same colour. What though there be little cavillings and discrepancies of opinion upon it among its scientific professors? the artist *feels* its general laws to be true.

You have now to paint a sky. There are many varieties of blue in sky tints; there are many ways of laying them. Cobalt is a usual colour. Prussian blue was formerly used, but is now no longer. Ultramarine is purer, but more difficult to use. French blue is sometimes used in its stead; it is greyer, more inclined to purple, in hue. There is a new blue called cerulean, or corline, having a tendency to greenness. Flat tints of skies are usually laid on in a very thin fluid state, repeated again and again, the cloud forms either left or taken out with bread, wholly or partially. Their forms vary, of course, materially, so much so that it would not be possible to classify or characterize them here. They are a study in themselves, requiring thought, as well as much practice. One thing, however, it is well to remark, that their forms should be left, or painted square enough. They should be pure in colour, particularly the greys of their shadows, not put in at random, but so as to express their form and thinness. There is a perspective in clouds that should be well attended to: as they retire they are generally narrower by their foreshortened positions, though sometimes the vertical nimbus clouds rise in opposition to this. In fact, there is so much which practice can alone produce success in, that it were fruitless to enlarge on this part of our subject. Judge for yourself, and not too hastily. Look thoroughly, and think while you look, and thus you will learn to see and to appreciate. The pleasure arising out of a rightly directed study will increase at compound interest, and you will love it for its own sake.

## ILLUMINATION.

Illumination, one of the most beautiful of the many branches of decorative art, and the most effective means of enhancing intrinsically the value of literary works, has been reviving for the last twenty years from a long dormant state, and may now indeed be seen advancing by rapid strides, as, fortunately, fashion has stepped in — and we all know how much depends upon fashion — to aid the revival of this art, in connection with heraldic blazoning, which, in like manner, is being more generally introduced now than it has been of late years. Formerly, it was part of the education of every person in a good position in society, and even in the present day the education of a gentleman cannot be considered complete unless he has acquired at least an elementary knowledge of heraldry. As this "Noble Science," as it is frequently termed, has existed from time immemorial, so must it continue as long as the pride of ancestry forms any part of human nature. Illumination in its present sense, means a combination of colour, gold, silver, and metals of any kind, applied to vellum, parchment, or paper, to adorn or decorate, and at the same time enhance the value of, books, memorials, or testimonials.

In very early times, minium — otherwise red lead or vermilion — was applied to decorate or mark particularly any words in the general body of the text, which was usually in brown or black ink. The application of minium is of the highest antiquity, and may be found commonly on the Egyptian papyri — specimens of which may be seen in the British Museum — and in the most ancient manuscripts extant. Red letters were used at the commencement of pages or for titles only. In Egypt, Greece, and Rome this was practised, though the manuscripts disinterred at Pompeii afford no traces whatever of ornamentation. Pliny, however, states that books, in his time, were decorated with pictures. The custom of introducing gold and silver as well as colours in the ornamentation of books is believed generally to have originated in Byzantium, the empire founded by the first great Christian emperor, and as in Rome art degenerated, so Byzantine decorative art improved contemporaneously. The "Codex Alexandrinus," now in the British Museum — attributed by all the best palæographers to the beginning of the fifth century — commences with three lines in vermilion, and is without gold altogether. From this period ornamentation of all kinds has been gradually added to the primitive distinctive marks of differently coloured inks. The method of laying on and burnishing gold and silver appears to have been in use amongst Oriental nations from a very early period. The Greek scribes of the third century formed a distinct class, and their works, written in gold upon vellum, frequently stained of purple or rose tints, were remarkable for their elaste and beautiful effects. One of the most ancient existing specimens is the "Codex Argenteus," written, A.D. 360, in gold and silver letters upon purple ground. This manner was in vogue in the seventh century, but during the eighth and ninth centuries this mode of stained vellum illuminations gradually de-

clined; many manuscripts, however, were written in gold on *white* vellum during the eighth, ninth, and tenth centuries, and there is a very splendid collection of fragments from the golden Greek "Canons" of Eusebius in the British Museum (Add. MSS. No. 5111). They are the most valuable relics of decoration of the school of Justinian that have been spared to us.

In the early ages the text was written in capitals, with a larger letter to commence the sentence. This style obtained until the seventh century, when elaborately designed letters were inserted. At this period and during the two following centuries the introduction of birds, beasts, human figures, reptiles, and flowers was common. The celebrated Hiberno-Saxon manuscript commonly known as the "Durham Book"—British Museum (Cot. Nero. D. IV.)—is one of the most beautiful known in this style. It is the production of the monastery of Lindisfarne, which was founded by St. Aidan and the Irish monks of Icolmkill in the year 634. This manuscript was written by order of Eadfrith, Bishop of Lindisfarne, in memory of his predecessor St. Cuthbert, a man renowned for his piety and learning, and who died in the year 698. This volume, known also as "St. Cuthbert's Gospels," was greatly enriched by the successor of Eadfrith, Æthelwald, or rather under his direction by the hermit Bilfrith. At the end of the sixth century, Gregory the Great sent St. Augustine to this country to make converts to the Church of Rome, amongst whom Ethelbert, with many of his subjects, was converted. Gregory at the same time forwarded several sacred and illuminated volumes, fragments of the most important of which are preserved in the library of Corpus Christi College, Cambridge. Another Augustinian Gospel, or rather fragment of such, is in the Bodleian Library, Oxford. They were generally very plain in character, being written in black ink, with occasional lines in vermillion. These books were rapidly multiplied by the monks of Canterbury, many of them being written in the purest uncial or rustic capitals, but decorated with the ornamentation of the Anglo-Saxon or Anglo-Hiberno style, and, were it not for the initials, not one of them could be supposed to have been executed in this country. The taste for gold and purple manuscripts seems to have reached England at the close of the seventh century, about which period Wilfred, Archbishop of York, enriched his church with—what at that time was considered almost a miracle—a copy of the Gospels thus embellished.

In England the art of writing in gold was very uncommon in early times, and the only remarkable instance of it occurs in the charter given by King Edgar to the New Minster at Winchester, in the year 966, which volume is written in gold. Most of the grand manuscripts of the tenth and eleventh centuries, styled by the authors of the period "*Opus Anglicanum*," were executed at Winchester, which was the great centre of the Anglo-Saxon school, and where an especial school of illumination was founded under the patronage of the celebrated Bishop Æthelwald. The ornamentation in the eleventh century became more varied in character, and was frequently highly finished, the writing was often beautifully formed and neatly written, the borders gorgeously coloured, and gold lavishly applied. Medallions were frequently introduced with figures upon various coloured grounds, from light



green and delicate purple, to dark and rich blue or chocolate colour, and bright yellow in addition to gold was prevalent. In the twelfth century the labour of producing books became divided between the scribe and the limner: the former wrote the pages and arranged the blanks to be filled up by the latter. The work resembled greatly that of the previous century, except, perhaps, that the finish and drawing of both figures and ornament was more perfect. There sprang up also a distinct fashion or style, unlike any work preceding. I give an example: These letters and ornaments were invariably in firm vermilion outline, animals forming frequently the terminations of letters or borders, and when introduced as distinct and separate figures, were often in black outline. The background to such work was frequently a delicate emerald green, and, in parts, light tints of ultramarine blue. In the example given the colours are heraldically expressed by lines in different directions.\* As manuscripts began now to increase in number very rapidly, and, as may be easily comprehended, varied from set rules by passing through many hands, the backgrounds were frequently laid in in raised gold highly burnished, making the ornamental scroll-work—flowers or such—tell out from it in a most brilliant manner. Figures were also painted upon gold, or were rather imbedded in it; the light illuminating the edge of the raised and burnished mass of gold tending still further to heighten the relief. In this country, and in the period at which we have now arrived, illumination was comparatively dead, and remained so for almost a century after the Conquest by the Normans. But new styles—one of which I have briefly described—were springing up on the Continent, particularly in France and Germany; and from the time of the marriage of Henry II. with Eleanor, whose lion of Guienne and Aquitaine he added (1154) to his own armorial bearings of two lions, thus forming the arms which to the present day represent the royal escutcheon of England, the French influence was also predominant, and the progress of illuminating was identical in many respects and features for a considerable time afterwards. One peculiarity of style at that period was a prevailing practice of outlining nearly every description of ornament, generally with black or dark brown. The initial letters assumed a large proportion in this Romanesque style, as it has been termed, being coeval with the architecture then popular. In the following century (the thirteenth) palæographers consider that symptoms of decline were evident, although the colours were as bright and the gold as profuse, and a more florescent style of ornament prevailed. The figures and ornaments were elaborately manipulated, more especially in Italy,



\* Perpendicular lines indicate *gules* or red.

France, and Germany, though so diversified in the character of ornaments that it was questionable in taste. In the next century the style was very similar, examples of which are perhaps more numerous than in previous ages, and the foliage and scroll-work were particularly beautiful in drawing and exquisite in colour. Very many examples exist of the various styles in this (the fifteenth) century, beautiful in the extreme, the details being generally elaborated in a wonderful manner. Flowers, birds, insects, and reptiles, in every shade and colour, were commonly introduced, and painted very carefully upon gold grounds. In many examples, the shadows cast from the flowers or other objects were thrown upon the gold background, and often stippled or dotted in brown, producing an effect very rich and agreeable to the eye. The discovery of the art of printing at this period (1440) was a severe blow to illumination, although borders and initials were still painted in books both of vellum and paper for some time afterwards, the body of the text only being printed. But, as letters rudely engraved on wood blocks, and printed in red and blue colours, were introduced, miniature painting, as a matter of course, was not in such request, and consequently declined in quality of excellence, and in this country fell to the lowest ebb about the time of Henry VIII. It revived, however, in the latter part of the sixteenth century, when Raphael, Da Vinci, Julio Clovio, and other great masters, added such lustre to the annals of art: some of them were still painted in respect of manipulation and pure colour. A specimen of one (and perhaps the finest in existence) by Julio Clovio is preserved in the Soane Museum in Lincoln's Inn Fields, and is well worth a visit from any lover of art. In the seventeenth century the art still existed; and manuscripts frequently, heraldic as well as religious, may be found, having been executed in the eighteenth century; and although the art was very nearly lost, it is now, I am happy to say, reviving through the very source from which its extinction appeared inevitable—that is, the printing press—chiefly through the facilities offered to the world by colour printing, more particularly chromo-lithography. Many of the magnificent works printed and published by the enterprising firm of Day and Son, of Gate Street (now a limited liability company), are too well known to require enumeration; and I cannot conclude the remarks I have made on this subject without referring my readers to the illuminated works published by those benefactors to history and art, the Messrs. Day, as the most ready mode of consulting the ancient authority without the labour, and in many cases almost insurmountable difficulties, of research in foreign libraries, as well as the next to impossibility of reference to private possessors of these more than golden treasures. I consider the revival of the art of illuminating in this country to be due in a great measure to the good taste and private energy, aided by the mechanical printing process improvements, of the aforementioned gentlemen.

With respect to books of reference for pupils, beginners in illumination, the most useful, and at the same time (considering the amount of information contained in them) the cheapest, are two little books, entitled "*What Illuminating Was,*" and "*What Illuminating Should Be,*" by M. Digby Wyatt, Esq., illustrated with chromo-lithographic facsimiles from original

manuscripts by W. R. Tymms, Esq. Mr. Digby Wyatt is too well known as one of the very best authorities on this subject to require any commendation from me. I may mention that the two little volumes I have just recommended are now published together in one volume, with many additional illustrated examples in colour, price one guinea; and I do not hesitate to state an opinion that it is the cheapest and best book of the kind I have ever seen or heard of. Many manuals have been published on this subject, some good, but many, I fear, commercial speculations only, by vendors of outlines of illumination now so much in request, and which for actual beginners are useful in the extreme. A very valuable work by H. Noel Humphreys, Esq., giving in facsimile whole pages of some of the finest and most interesting examples now existing in this country, as well as in some of the libraries of the Continent, entitled "The Illuminated Works of the Middle Ages," should certainly be consulted by any one pursuing the art in question. This work may be seen in nearly all large libraries, and of course in the British Museum. Another invaluable work, entitled "The Grammar of Ornament," by Owen Jones, Esq., has been recently republished in a smaller form and at a reduced price. This work contains three thousand examples from various styles and in colours.

The student will be led naturally to commence by copying portions of early manuscripts. She will thus acquire the manner and character of such compositions. This, however, should be carried only to a certain extent—only, indeed, so far as to imbue the mind with the characteristic of quaintness which is one, and, indeed, a chief pleasure in the contemplation of those interesting specimens of antique art. I do not advocate, however, the copying servilely, for any lengthened period, the illuminated examples of the middle ages, but the use of them, and the perfect acquaintance with them, as a basis to work upon; for I hold that the general feeling of the work should be to some extent in accordance with the present age—that in which they are produced—though founded on an antique manner.

As a first essay at composition, then, let us try our powers of mind and hand upon one page. Take a verse of poetry—any subject which pleases you best. It should be simple—not too complicated—not embracing too much matter. To begin, then: Sketch roughly with a black lead pencil the size and general position of the lines of lettering, and when you are satisfied with the proportion and space occupied in such, sketch also, in the same slight manner, the position and general form of border or initial letter, with its accompanying ground. Then consider the colour and effect intended; though this you will have in a measure disposed of in the first or mental consideration of your subject.

Harmonious arrangements of colour are indispensable. It is not only brilliancy in the colours composing your picture with which you must concern yourself, but the just disposition of them, so that each one shall enhance the value and beauty of the others. A picture composed of bright colours only will rarely please the eye; and if those bright colours are unharmoniously disposed, the eye will be irritated rather than satisfied. Violent contrasts—such, for instance, as bright red and bright blue—should not be

juxtaposed, unless divided by a band or line of black or white, light or dark grey, or neutral colour, such as gold. Compositions of chaste design, generally pleasing proportions, and good grouping of ornamental masses is primarily important, and should absorb all the pupil's attention in commencing a new subject; and let me observe, that patience is a virtue here absolutely necessary. I make this remark, as I find, by experience, that pupils are often impatient to arrive at results. That such impetuosity must retard rather than induce progress will, I am sure, be at once admitted.

You have now sketched your design, having taken care, doubtless, that the initial letter—should there be one—appears neither too large nor too small; that the surrounding leaves or ornament be proportionate, as a large letter filled up with very small fine work would be objectionable, as would be in like manner a small letter surrounded or filled in with forms of foliage or other matter of too large a proportion. All lines, where possible, should flow, as it were, gracefully one from another in gradual undulations. No sudden or violent tangential shoots from stalks in opposite directions should occur; no excrescences—nothing, in short, that can puzzle or excite, suddenly or disagreeably arresting the eye. The composition should, indeed, be so adjusted that the *ensemble* may be impressed upon the mind agreeably and at once. As a rule, it will be found that all patterns—for example, those of paper-hangings—that require looking at intently and searchingly before the design is clearly understood, create impressions less pleasing than those comprehended at a glance. This remark will apply equally to historical, landscape, as to ornamental subjects. For colouring, be it observed, clean brushes and pure water are indispensable. Sable-hair brushes—or, as they are sometimes called, pencils—should be used; and, where the colour or pigment is used thickly, *red* sable brushes are preferable, as the hair is stronger than the black, which latter would be liable to expand when fully or overcharged with thick colour, and would thus be disagreeable as well as difficult to work with. Where flat transparent washes of colour are required, they should be laid on as rapidly as possible with a large brush well filled with colour; repetition of touch being as much as possible avoided, as the flatness or evenness of tint would be impaired thereby. Manipulation, indeed, requires particular attention, and more especially when the material on which the illuminator is working is vellum. By the way, I do not advocate the use of vellum for a beginner, as the removal of superfluous lines or marks is very difficult on that substance.

To reduce or lighten tints by the addition of white, care should be taken that "Chinese white"—not flake white—be used, as the latter, being the metal lead, will change in a very short time any colour mixed with it to its own dull hue. Bronze powder, mixed with a little gum-water or other gluten, may be used instead of gold: the effect, for the purpose of a sketch, produced with this material, is all that can be desired, and is moreover much more economical than real gold. Where, however, this last expensive metal *must* be used, that in the shell is the best, and least difficult in its use for beginners. Where a large mass of lettering or text is required, indelible brown ink is preferable to Indian ink or lamp black, either of which appears under these circumstances too cold in colour.

Shading, so called, now demands your particular attention. It is produced by more or less stress or pressure of the brush, dispensing more or less colour, as necessary. Practice will achieve this, but practice only. Hatching and stippling are also resorted to for rounding off or shading, and for producing the effect of high finish. Shading on a leaf (as Fig. 1) is often represented carelessly, showing botanical as well as manipulative ignorance, by a mere daub of colour down the centre of the leaf (Fig. 2), appearing like a trench, destroying the form, which, even unshaded, might be suggested by the outline alone, and more satisfactorily.

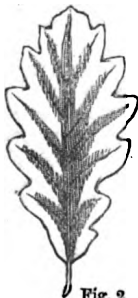


Fig. 2.



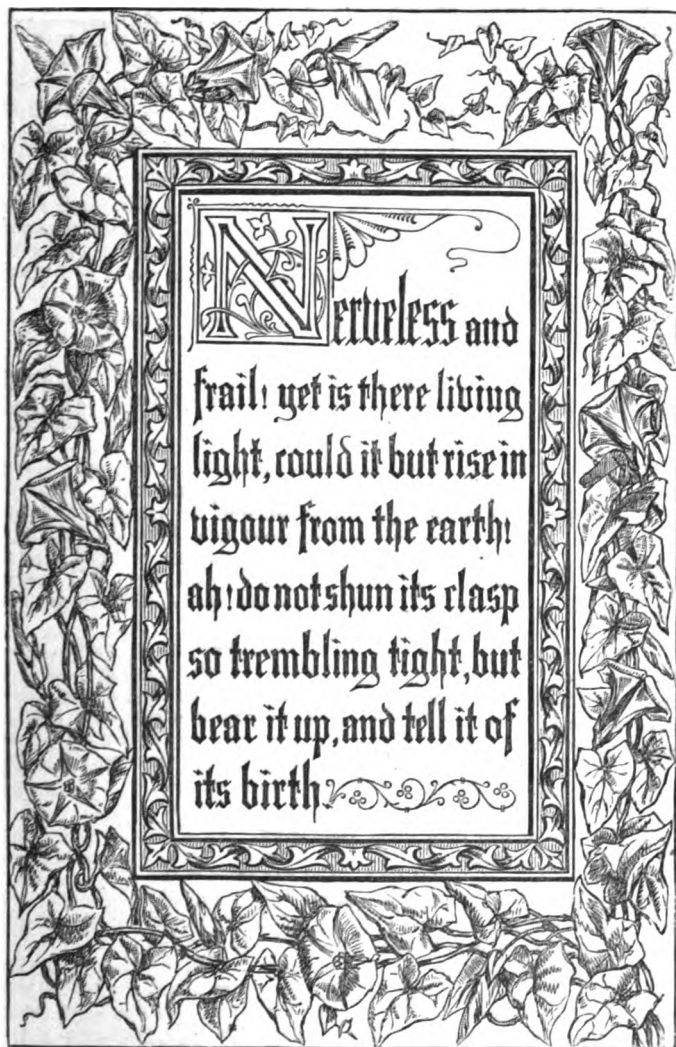
Fig. 1.

I will now endeavour to show you how to proceed with an original design. Take the flower of the convolvulus, or any other you please. Draw it naturally to a certain extent. When I say to a certain extent, I mean that, as you may in all probability find difficulty in making the flowers, or leaves and stalks, fill up the space you purpose occupying, you may conventionalize the drawing by taking a sprig or branch cut from the main stem to occupy the portion required, as in the drawing, taking into consideration the peculiarity of botanical construction of the plant you are drawing; and, in case any portion of the composition is unsatisfactory, and difficulty experienced in rubbing out, make a tracing of the good portions, and draw the additional alterations also on the tracing-paper. Should further improvement be



requisite, make yet another tracing from the improved one, or repeat this process until the composition is as perfect as you can make it; that is, turn the tracing-paper, and retrace it. To do this, place it upon white paper or some white substance, so that it may be easily seen, and mark over all the lines very accurately with a soft pencil, say HB, having a fine point; make a clear line, and let there be no superfluous marks. Then place it in position, and attach it to your paper or cardboard by a few touches of gum, and, when fixed, place a sheet of letter or note-paper upon it, and rub steadily with a paper-knife or pen-knife handle until the design is transferred sufficiently clear, when it may be coloured at once,

or, if desired, outlined in very light Indian ink. The rough effect of colour might be tried upon the tracing after it has been transferred, and when it is of little further use.



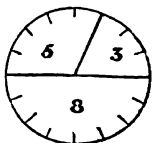
A few remarks respecting the lettering or text may not be out of place here, for it is a very common fault with beginners to pay less attention than they ought to this particular. The lines for letters must be ruled with the greatest accuracy and must be quite horizontal, and the letters should be perfectly perpendicular and carefully spaced in pencil before they are inked or coloured in. A few parallel perpendicular lines, ruled very lightly all over the space occupied by the text, will be of the greatest assistance in making the finished drawing. With respect to capital letters, where they occur in the body of the text, they may as a rule be the same height as the tall letters, such as *I, h, k*, &c. The illustrations on previous page I give as an example of such a page as I have suggested the pupil should commence with, and you will perceive that I have retained the Gothic text in preference to one more modern; or, perhaps I ought to say, retained the form as a basis to work upon.

In sketching the letters, make all the perpendicular strokes first, thus:



which should take the same angle or inclination throughout, and must on no account project beyond the upper and lower pencil lines. When the lettering is finished, proceed with the outlining of the border, which may be done with light ink, should the transferred lines from the tracing be insufficient, and when complete, remove with India rubber, or bread, the lines transferred from the tracing. Now commence colouring. The colours should in the first stage be laid on very evenly with a sable brush—not camel's hair, as the latter has no elasticity.

I will now name a few of the colours most likely to be useful to the student. As it is admitted as an established law that there are but three primary and independent colours—independent because they cannot be produced by complication, and for that reason termed primaries. The acknowledged proportions of the colours, taken, of course, in equal intensity, are three of yellow, five of red, and eight of blue; and these primaries will be found to neutralize each other according to the proportions just named, and if mixed together in these proportions, they will nullify each other completely. To prove this, take a circular piece of card, and divide and mark it equally into sixteen parts, (as fig.) Paint any three of the divisions yellow, five of them red, and the remaining eight blue. Insert a pin in the centre of the card, then cause it to rotate or spin round swiftly, and you will find that the eye in watching its rotation will be simultaneously impressed with the succession of colours, thus in effect destroying each other, the result being white or the absence of all. The same remarks and results would be evident were you to take the secondary colours, viz., orange, green, and purple,



in *their* relative proportions, *i.e.*, eight of orange, eleven of green, and thirteen of purple; so also with the tertiaries—citrine, russet, and olive.

Dilation, however, upon the theory of colour would, I fear, confuse the beginner, for whose perusal these remarks are intended; but for further information, if they need it, they may consult the work of M. Chevreul. The colours most generally useful are cobalt blue, French blue, and indigo; Indian yellow, yellow ochre, and lemon yellow; rose madder, carmine, vermillion, and light red; emerald green, Veridian (from Winsor and Newton's), or Silica green (Miller); Indian ink, lamp black (a dull mat colour), and ivory black—a rich gummy material, telling upon the lamp black as a glazed and deeper tone. In made greens, cobalt and yellow ochre, and indigo and Indian yellow; for greys, Indian red, yellow ochre, and French blue mixed together; and for a very delicate pearly grey, rose madder, emerald green, and cobalt blue, mixed. Mars orange and cadmium yellow are the brightest orange colours; for purples, carmine and French blue united are brightest. Crimson lake will answer for all general purposes instead of carmine, but will not be quite so pure or brilliant, though neither are durable. For lilac tint, cobalt and rose madder mixed together. The following colours are to be avoided as fugitives, not permanent: gamboge, Prussian blue, chromes of all kinds, orange lead, or orange vermillion. Vandyke brown and madder brown are good and useful colours. For glazing and giving depth to colours, avoid the use of gum, as it is sure to crack on the surface, and frequently peels off. There are many different materials as mediums sold at all the artists' colourmen's establishments, each manufacturer, as a matter of business, declaring his own to be the best; but from what experience I have had, I consider the wax-water maguiph sold and manufactured by Reeves and Son, of Cheapside, London, to be the best. It may be used with the colours or applied afterwards as a glaze, at the option of the artist. With respect to gilding, the *shell gold* is the easiest of appliance for pupils: it is rather more expensive than gold leaf, which is difficult to use, or at least requires a great deal of practice to lay on evenly. Aluminium is sold now attached to saucers in small cakes. This material will not tarnish like silver, and can be burnished easily and brilliantly with the agate. For grounds, as for light flowing ornaments or scroll-work upon rich blue, or, in fact, any rich dark colour, this material will be found exceedingly useful.

Very little practice will be required to overcome the mere mechanical difficulty of mixing and laying on the colours. Such essays should be made upon some small works, such as book-marks or simple things of that kind, as such may be soon finished. I have published myself many small outlines of the description just mentioned for the purposes of beginners. Many excellent and pleasing effects may be produced by the burnisher on gold or silver grounds, by lining in lozenges with dots between the lines or bands. Scroll-work may also be drawn in with the burnisher at once, but in no case must any indication of pencilling be shown under the burnished lines, or the crisp delicate touch will be impaired; and where gold and silver ornaments are required raised above the surface of the paper, a very good



material for that purpose is "the mediæval gold body," made by Barnard and Son, of Oxford Street.

Having already arrived at the limit of space to be devoted to these hints on illuminating, I can only now advise the reader to consult the real illuminated MSS. in preference to copies, where possible; and in case personal instruction should be required, be sure that the teacher has the knowledge and power to impart such; as many who advertise to teach in a given number of lessons the art, as they term it, of illuminating, are mere adventurers, possessed of little more knowledge than that required for manipulation, and that in its most crude form. This remark may appear for the moment superfluous; but I assure the reader that many young ladies, wishing to add to their incomes by agreeable ladylike occupation, read the advertisements of these quack illuminators—if I may be permitted to make use of such an expression—and are generally victimized by taking a course of lessons, which prove useless.

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## PHOTOGRAPHY.

Photography means, as every one knows, "drawing by light." There are many different methods or processes by which photographs can be taken, but I shall confine your attention to one, as it is best to master one process at a time, so as to avoid confusion.

A sheet of suitable material is impregnated with a substance known as iodide of silver, or with bromide of silver, or with a mixture of the two. This is done in a room lighted only by a lamp giving a yellow flame, as the yellow rays of light have no photographic action; or, if by daylight, the light is coloured yellow by covering the windows with yellow calico. We will call the prepared material "the plate."

The plate, when properly prepared, is placed in a *camera*, and there receives the image (or picture made by the *lens*) of the object which is to be drawn or photographed.

The camera is a wooden box, of a size proportionate to the dimensions of the pictures to be taken. It is usually made in two parts, one of which slides within the other, so that its length can be adjusted within certain limits.

At one end of this box is fixed the glass or lens which forms the image, and at the other is a movable screen of ground glass, on which the picture or image of the object is seen. The length of the box is carefully adjusted each time the instrument is used, so that the picture is quite clear, or "sharp," or, as it is technically termed, "in focus."

The ground glass screen is removed when it is required to take a picture, and in its place is inserted a *slide*, as it is called, which is a small narrow box, containing the plate, prepared in the dark or yellow room. This slide is contrived with a shutter in front of the plate, so that while being carried about the room no light can enter it; but when in its position in the camera

the shutter can be drawn up, and the plate will then be "exposed" to the inside of the box or camera. The groove into which the slide fits is so contrived that when the shutter is drawn up the plate shall occupy precisely the same position as was formerly occupied by the ground glass. After a certain space of time the plate is removed to the yellow or dark room again, and upon examination no trace of an image can be seen upon it; but a solution of pyrogallic acid\* and other ingredients (technically called "developing solution") being poured over it, a curious change takes place: metallic silver is precipitated on those parts of the plate on which the light has acted, more silver being thrown down upon those parts on which light has most acted, and less upon the parts where the action has been less, so that in a little time a perfect picture is made, resembling the image which was seen in the ground glass. The plate is now washed, and those parts of the iodide and bromide not used in the formation of the picture are removed.

Now, as the white and light-coloured parts of the original object must have acted most upon the prepared paper, in virtue of their reflecting more light, and in our picture the white parts of the original are represented by black, and the black parts by white, our picture is now a negative, that is, every tone in it is exactly the reverse of what it should be.

To obtain a copy of this negative, in which all the lights and shades will be in their proper position, is our next object. For this purpose a sheet of a substance, known as carbon tissue, is dipped in a solution of bichromate of potass in the dark or yellow room, and then dried also in the yellow light.

A piece of this is now placed in contact with the negative, and exposed for a little time to the light. It is then removed again to the dark room, where, after sundry precautions, it is plunged into hot water, when all those parts of the tissue which are not wanted to form the picture are dissolved away.

I must explain this a little. The carbon tissue is formed of gelatine and black paint (or there may be a little colour in it if thought desirable). The bichromate of potass has this peculiar action on the gelatine—that, by the action of light, it renders it *insoluble*. Now, when the light passes through the negative upon the tissue, it will be seen that very little will pass to affect the gelatine situated just where the white parts of the picture come, because the white parts of the original are black in the negative, and being black they will not transmit much light; but where the dark parts of the picture—that is, the *light* parts of the negative—occur, much light will pass through to the gelatine and render it insoluble; and so the whole negative will be reproduced, the action of the light being exactly in proportion to the density or colour of the negative.

Now, in order to secure all the tones and gradations of colour which have been imprinted, as it were, upon the tissue, by rendering certain portions of it insoluble, it is necessary to dissolve away the unaltered gelatine from the

\* In the latter part of this paper, sulphate of iron is the substance used for a developer. Its action, though of a different nature to that produced by the pyrogallic acid, ends in the same result—the development of the picture. Pyrogallic acid is of more general application to all processes, and therefore it is mentioned here.

back, and not from the face upon which the light acted. For this purpose the tissue is cemented, face downward, upon a piece of clean white paper, and then plunged into warm water; the paper on which the gelatine was spread in the first instance now soon comes away, and then, at first slowly, but afterwards more quickly, the gelatine not acted upon will dissolve away, and with it will come all the paint with which it was mixed, until at the last none will be left but what is wanted to make the picture. The finished print, having been washed in a little clean water, is hung up to dry, and may then be considered as so far finished.

A great variety of materials of different kinds, each with its own peculiar advantages and disadvantages, may be prepared to receive the photographic image; but the substance on which we are going to work, as being by far the most generally useful, is known as *collodion*. It is a liquid composed of ether and alcohol, in which is dissolved some soluble gun-cotton and iodide of potassium, with generally a little bromide also; this, when poured over the surface of a sheet of glass, forms a perfectly transparent sort of paper of the most extreme delicacy. It is so delicate, indeed, that it cannot (except with extraordinary precaution) be removed from the glass without being broken and torn. Thus glass is always used as a support to the "film," as it is technically termed, of the collodion negative.

This film is impregnated with the iodide and bromide of silver in the following way: In the collodion are dissolved, as I said above, iodide and bromide of potassium, or cadmium, or ammonium. These are not in any way acted upon by the light, and the bottle of collodion may be kept in any ordinary apartment. When, however, some of the solution is poured upon glass, and a sheet of our paper is made, upon which we wish to take a photograph, it is removed to the dark room, and then plunged into a vessel containing a solution of nitrate of silver. Here a change takes place: the iodide and bromide of silver are formed in the film, and the nitrate of potassium, cadmium, or ammonium is formed in the "bath" solution, as it is technically termed. This change or decomposition is the result of chemical affinity, and is a matter with which we have now nothing to do. The glass plate went into the bath clean and clear, and quite transparent, and in about three minutes, when taken out, the collodionized surface is impregnated with the required "salts," as they are termed, of silver. These give it a yellowish cream colour, varying according to circumstances.

Before describing in detail all the manipulations of taking negatives, it will be well to say a few words on the dark room, and on the chemicals employed, in order that the accounts of these things be not mixed up with other matters.

A room should be provided as large as convenient, all the windows of which, save one, should be permanently fastened up with either thin boarding nailed up so as quite to exclude the daylight, or thick brown paper pasted over them for the same purpose. The other window must be covered over first with a double thickness of thin bright yellow paper, which must be pasted over it on the inside, and then a blind of two thicknesses of yellow calico must be provided, nailed over the inside of the window, and if the

sun ever shine upon the glass, it is well, especially in summer-time, to provide yet another blind of yellow stuff outside the window. This will be very soon bleached by the sun and air, to say nothing of the rain, so it should be renewed every month or two when much work is to be done.

Near the window a low table must be placed, with a large basin or tray to catch water, and a jug and pail of clean water will also be required, for a supply to use for washing plates, &c. If very much work is to be done, the water should be laid on from a tank fitted up with a cock and ball-tap, and a regular sink made, with a waste-pipe into the drain.

Besides the apparatus for working just spoken of, there will be required in the dark room a "dipping-bath," as it is called, full of the "bath solution" (the solution of nitrate of silver). This is usually a narrow upright vessel, a little larger than the plate to be used, and provided with a little arrangement called a dipper, by means of which the glass can be lowered into the solution and brought up again without wetting the fingers. The chemicals which will be required are as follows. Collodion—any dealer in photographic materials will sell it. As it is composed chiefly of very volatile fluids, it must be well corked or stoppered, and care must be taken not to open the bottle too near a flame, lest it blow up, a performance to which it is much addicted. The bath solution consists of 35 or 30 grs. of nitrate of silver in every ounce of water; but it would be well for beginners to buy this solution also ready made; it will not cost them more than to make it.

Developing solution will also be required: this every photographer must make for herself. Take as many ounces of water as may be thought necessary, say about ten; put them in a bottle, add 10 grs. of sulphate of iron (the protosulphate sold with the chemicals) for each ounce of water, and also add 15 minims of glacial acetic acid and 15 minims of alcohol for each ounce of water. When the iron is dissolved, the solution will be ready for use.

Another developing solution, or, as it is sometimes called, an intensifying solution, will be wanted in some cases. It is made as follows: Pyrogallie acid, 1 gr.; water, 1 oz.; citric acid, 2 gr. When this solution is used, a small bottle, with a 25-grain solution of nitrate of silver, must be at hand, as a few drops of this will be required. A little spoilt bath solution will do very well for this.

To make the "fixing solution," as it is called—that is, the one which is used for clearing off those parts of the yellow film which are not wanted to form the picture—put a quantity of the crystals of hyposulphite of soda into a convenient wide-mouth bottle, and pour on some water, taking care that more crystals are present than the water will dissolve.

Now for work.

Fix your camera on its stand, and set up the object you want to photograph in a good light, say near some convenient window, or, if in fine weather, out of doors will be best. Then without staying for more than a rough arrangement of the subject, return to the dark room and "prepare a plate" thus: Take a clean glass from the box (the glasses should be kept clean in the box, being washed with common soda, and, after thorough

rinsing, carefully dried with clean cloths), place it on a piece of clean paper on the table, and mind that the table where you put the paper down is quite dry. Now pour on the surface of the glass a few drops of spirits of wine; rub them over the surface with a tuft of cotton wool, and then wipe the plate dry with an old but clean handkerchief, and finally polish it well with a wash-leather. Breathe on the surface to see if clean: the breath should not rest for a moment on the glass, but fly off instantly. If it rest it must not show any lines or other strange marks, but must be quite even. Should lines be seen, the glass must be cleaned until they vanish.

When perfectly clean, take the plate up by the forefinger and thumb of the left hand in one corner, the finger under the glass, the thumb over it; the point of the glass will dig into the flesh just under the thumb-nail, and the plate can thus be held quite firmly, but without any danger of contamination from dirty fingers. Now, having previously removed the cork or stopper from the neck of the collodion-bottle, and wiped the lip from any little dried particles which may have adhered to it, seize the bottle with the right hand, and pour upon the centre of the glass (which for this purpose must, of course, be held in a horizontal position) enough of the collodion to cover about one-third of the whole-surface. Now cease pouring, and very gently tilt the plate so as to flow the collodion first to the corner right opposite to the thumb, then to the one on the left of that, then to the one at which the thumb is holding the plate. Do not let the collodion touch the thumb if you can help it, and finally pour it all off again into the bottle from the last corner, which will be the one on the right of the thumb. When the plate is being drained into the bottle, you will see the whole surface of the collodion "film," as it is called, covered with long streaks in the direction in which the drainage takes place. A slight oscillating motion must be given to the glass, just enough to make the little ridges close up and give an even surface to the film. This operation of "coating the plate," as it is technically termed, seems very difficult from the description, but it is really very easy, and will be soon learnt with a little care and attention.

When the collodion ceases to drip, replace the stopper in the bottle, and then remove the last hanging drop on the lowest corner of the glass plate, either with the finger or with a little ball of paper kept for that purpose, and then the glass is ready for immersion in the nitrate of silver bath. Raise the "dipper" from the vessel, and rest the plate on the little ledge provided at the bottom; let the back of the plate be in contact with the dipper; wait for a few seconds to be sure the film is well set, and then with one steady plunge lower the glass on the dipper into the solution. The least pause in this operation will cause a line to be formed across the plate, which will be painfully evident in the finished picture. Cover the bath up, either with a black cloth, or (if one be provided) with its cover, note the time, and then return to your camera and focus the object.

Point the camera at the object to be copied and put the black cloth over your head, and then, first by pushing the sliding body of the camera in or out, roughly adjust the focus of the lens, that is, get it into such a position with regard to the ground glass that the image or picture there is tolerably

clear. Now, having clamped the back of the camera with a screw provided for that purpose, reach out the right hand, and with it, turn the milled head of the rackwork on the lens, watching the image all the time. In this way the picture may be got perfectly sharp and clear.\* Now withdraw the head, remove the ground glass, put the cap on the lens, insert into its place a medium-size stop diaphragm, and then return to the dark room. There is no occasion to hurry over the arrangement of the camera, but the plate should not be left longer than need be in the bath: about five minutes is quite time enough. Having closed the door of the dark room and uncovered the bath, move the dipper and the plate on it up and down a few times, and then lift it right out, seize the plate again in the same corner as before, and having held it a minute or so to drip on a piece of blotting-paper, place it face downwards in the dark slide of the camera. Before closing the door upon it, put a piece of clean blotting-paper at the back.

Now as soon as possible return to the camera, and insert the dark slide in its place, draw up the shutter of the slide carefully with the right hand, holding the left so as to prevent the body of the slide rising too, as, if it did so, the light would enter underneath, and then the plate would be spoilt. Having got the shutter up to the top, bend it forward upon the camera, and then carefully remove the cap of the lens, taking care not to shake the camera in so doing.

You have now arrived at the most difficult part of the whole proceeding. Up to this point all has been easy enough; so much so, indeed, that one or two careful attempts will be all that will be found necessary to insure success; but now you have a task to perform which is one of real difficulty: you have to judge of the time during which you will expose the plate to obtain the image upon the sensitive surface of the plate you have just prepared. The best I can do for you is to tell you some of the causes which will affect the length of "exposure" which is necessary to be given.

First, the colour of the objects. White, blue, and lilac take quickest; red, yellow, and black very much more slowly, and some tints of them will hardly "do" at all. Then the time of day has much influence, and the character of the weather more: east and north winds make the exposure much longer than when the wind blows from the west or south; and, lastly, the amount of light which reaches the object has the greatest influence on the time of exposure.

With all these elements of uncertainty in the calculation, it may seem to some surprising that the exact time can ever be hit properly; but we are fortunately able to tell during the development, or next stage of the proceedings, what relation the exposure given has to the one which the circumstances of the case demanded; thus, although the first plate may be spoilt, a second attempt may with ease be nearly right, and a third will probably be quite so.

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\* In taking landscapes, it is a good rule to focus the foreground about 50 ft. from the camera; for buildings, when parallel with the camera, place the sharpest focus about half-way between the centre and the edge of the picture; and, in doing a portrait, focus the eyelashes of the nearest eye.

Having thus given some exposure to the plate (say, at a very rough guess, from ten to twenty seconds, if doing a moderately white object in a fair light), replace the cap on the lens, and then shut down the sliding shutter of the dark slide, and return with it to the dark room. Having again closed the door, open the back of the slide, take out the blotting-paper and with it wipe the back of the glass; then remove the plate, and holding it again by the same corner as before, pour upon its surface some of the developing solution. Some little care is needed in pouring on the developer. It is best to begin to flow it close to the thumb, and to run the lip of the glass along the edge of the plate nearest to you, pouring the solution all the time and tilting the plate, so as to make the liquid run to the farther side.

When well covered, restore the plate to the horizontal position, and keep the solution flowing backwards and forwards upon it, and while so doing watch the effect. If *no* picture appear in about a minute, and then only faint traces of one, the exposure has been much too short: try three or four times as long: if the picture all flash out at once and the whole surface of the plate assume a grey tone, the picture has been as much *over-exposed*: try one giving only about one-third the time.

The proper effect of the developing solution is as follows: about from ten to twenty seconds after its first application the whitest parts of the picture burst into view, then the tones next in order of whiteness, until, in about one or at most two minutes, the whole picture is developed. When the glass seems pretty well covered with "detail," and the picture looks nearly finished, throw off the solution, and hold it up to the light and note its general appearance. It should be clear and brilliant, the light parts of the original of a firm, dark tone, and the dark parts quite transparent (that is, at this stage only of the yellow colour of the film, with no dark deposit on them). Return the plate to its horizontal position, and again pour on the developer, and continue its action till it will act no longer, that is, till it will no more *bring out detail in the darkened parts of the picture, i.e., the transparent parts of the negative.*

When the development is concluded, wash the plate with plenty of clean water, and then carefully examine it. There should not be a streak or a stain of any kind upon it; if such should occur in any part, it is almost a sure sign of imperfect manipulation. The light parts of the picture should be almost opaque, but not quite; the extreme black in very deepest shadows should show nothing but the clear unaltered yellow colour of the film; all between these two extreme tints should be filled up with endless minute gradations of light and shade in the most perfect harmony. It will be a very great help at this stage of the proceedings to have a first-rate negative to compare your own with. It is of the most vital importance to secure negatives which shall be all alike in tone.

Now, the fault that will most likely occur in the negative produced in this manner, and with the developer above described, is want of "intensity," or blackness, in those parts which are white in the original. Should such be the case, the remedy is simple: having well washed the plate by pouring water upon its surface in a gentle stream, drain it for a moment, and then

flood it with a little of the redeveloping solution,\* and when it has well flowed over, pour it back into the glass, and then mix with it a few—say five—drops of the plain solution of nitrate of silver, about 25 grs. to the ounce, stir it well up with a clean glass rod, and then again pour over the plate. Now watch the colour of the image, and if you have a test negative to work by, you can with care get the density quite right in a minute or so. Have ready a jug of water to pour on when the solution has acted as long as required.

Now well wash it, and put it into a dish with some of the fixing or cleaning solution till all the yellow colour has quite gone, and then, after another thorough washing, the plate may be dried, and it is complete. If it is to be printed from much, it should be varnished. The varnish must be poured on in the same way as the collodion, and drained off, as before described. Some varnishes require the plate to be warmed before they are applied; but when this is the case the "instructions" on the bottle will always indicate the necessary treatment.

We have now completed our negative; but before going on to the third part of my paper, I propose to give a few hints, which will be, I hope, of some use in aiding the production of perfect results.

Sometimes the plates "fog" during development, *i.e.*, become enveloped in haze and mist, which pervades those parts of the plate which should be quite clear. If so, first make quite sure that no white light reaches the plate at any time when it should not; next see that there is not too much yellow light in the dark room, and that the sun does not shine on the window; next try a little more acid in the developer; observe also that the collodion is of a decided sherry colour, or darker. Should it be colourless, add a very little tincture of iodine, which will produce the effect required. If none of these succeed, try a new bath solution, or, before you do so, add one drop of nitric acid to the bath, and see if it produces the right effect.

Be sure when you wipe the lip of the collodion-bottle that the little dried pieces do not fall inside. Take care there is no dust on the glass plate when you pour the collodion on it. If the camera should be placed in sunshine, always put a black cloth over the slide before pulling up the shutter, so as to be sure that no light strikes into the groove in which it moves.

When the plate is in the dark slide, care should be taken to keep that end downward which is at the bottom when in the camera. The object of this precaution is to prevent the drainings of the silver solution from running back again over the plate, as they would cause stains.

"Under-exposure" is a fault much more common than "over-exposure."

After development the plate should be well washed as directed. It may then be taken out into the daylight without injury, but should be taken back into the dark room before being "intensified."

N.B.—Never be tempted to use "cyanide of potassium" for any operation whatever connected with photography. It is a deadly poison, and is therefore a very dangerous substance to have in the house.

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\* This redeveloping solution must be used in a clean glass; not the one used for the "iron developer."



The nitrate bath is one of the most troublesome solutions with which the photographer has anything to do. My advice is to have three distinct bottles of it; one for use, one to try should there be anything wrong with the first, and one a new solution ready should any emergency necessitate its use. Try and do as much with the first as possible. When it is quite out of order, set it on one side, and use the second for the working bath and the third for the spare solution, and then buy a new one. Never by any chance have less than three bottles at hand. Always keep the vessel containing the working bath well covered up. In cold weather use a little warm water to wash out the last traces of hyposulphite of soda from the film. At all times let the washing be as complete as possible. When using the camera out of doors, mind that the light does not fall too strongly on the lens itself. Use a shield roughly made of a piece of brown paper and string, to protect it if necessary.

Do not attempt portraiture till you have had considerable practice in other branches of photography; and when you do try it, be well prepared for an unlimited series of *failures*. The best practice for beginners is to photograph a white marble or plaster statue or bust. Choose a north window, and arrange a table in it; set the statue on the table on a nice cloth, then nicely arrange some neat drapery in the background—a curtain will do very well. The statue should stand about 3 feet from the window, and rather on one side of it. The camera should be placed, not opposite the window, but nearly in a line with it, so that the statue, when seen from the camera, will be lighted from one side.

### THE CARBON PRINTING PROCESS.

I have determined to describe in this paper the carbon printing process, recently brought to perfection by Mr. Swan, in preference to the old method of obtaining the impressions from negatives, for two reasons: first, and most important, because Swan's process gives results which are permanent and which will not fade; and second, because the process in question is much easier than the old method, and is therefore, in my opinion, better. Were there no other advantages, these would be enough: there *are* many others on which it is quite needless to enter here.

The following instructions will, I think, suffice to enable the reader to make some successful experiments in practice.

Get some—say ten or twenty—sheets of the prepared “tissue.” It looks quite white on one side and quite black on the other. Besides the tissue you will want the following: some bichromate of potass—solution strength, 1 oz. to 12 of water; some solution of India-rubber—strength, 12 grs. of rubber to 1 oz. of benzole; and a little finely-powdered French chalk. You will also need a small screw-press, or a rolling-press will do, but the other is much less expensive; it may be just the size of the pictures you are about to make, or as much larger as you like. You must also obtain a sheet of Carrier's “ready sensitive albumenized paper,” to be obtained at any dealer's.

Now for work.

Pour into a dish some of the bichromate solution, and then put in a piece of the tissue, making the solution flow all over it by means of a small brush, or by turning it over and over. The solution should be as cool as possible, and the fingers should not be put into it more than is necessary. The tissue, having been in for about two minutes, is to be taken out and hung up to dry in any way that will admit of a free circulation of air about it. The best way, perhaps, is to hang it over a round rod, such as a walking-stick. It will, under ordinary circumstances, be dry in about from six to twelve hours. Heat must not be applied on any account to hasten the drying. When it is quite dry, a little of the French chalk may be rubbed over it on the black side, and then it may be kept between the leaves of a book for a few days, or used at once. All this must be done in the dark room.

Now put into one of the "printing-frames" a negative with the varnished side uppermost, and on this lay a piece of tissue, with the black side downwards next the film of the negative, push the back of the frame in, and carry the frame out into the light, and there expose it in the shade. At the same time put a piece of the prepared albumenized paper, about the size of a postage-stamp, behind the dark part of some other negative (the face of a small portrait, for instance), and expose this paper close to the tissue in another frame, so that both have just the same light to act upon them. In about half an hour take both frames into the dark room; note exactly how much the paper behind the second negative is coloured. Now proceed to apply to the surface of the tissue (the black surface, I mean) a good thick coating of the India-rubber solution; apply the same to a piece of paper about the same size, and leave them both to dry. When quite dry, apply the two surfaces of the India-rubber together, and rub them well with the hand on a smooth board. Place the two together for a moment in the press, and then put them into tepid water, about 80° or 90° F. In about ten minutes the colour from the tissue will be seen gradually coming out all round the edges, and now, if a little corner of the paper that was *originally belonging to the tissue* is lifted by a pin or other means, it will come off from the black layer underneath with great ease. It should not be torn away with any violence; but if it will not come with ease, it must be left a little longer to soak.

Now turn the tissue (or, as it will be in a minute or two, the picture) with its face downwards in the water, and at the same time increase the temperature of the water to about 120° F. This is best effected by an addition of a little boiling water, or the print may be transferred to another dish with water in it of the right temperature.\* In a few minutes the black stuff in the tissue not wanted to form the picture will all come away, and on examination the picture will be seen developed in all its true lights and shades, like the original from which it was taken. Now you will see the use of the small test-paper exposed at the same time as the negative: it will enable you ever afterwards to be quite sure of getting a good print, by simply showing you how darkly the image is imprinted upon the carbon tissue. If your

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\* Care must be taken not to pour very hot water on the print.

print that you have just developed be too dark, try one again, and this time mind you examine the test-paper, and do not let it get too dark. A little practice will soon enable you to obtain these carbon prints with certainty.

But you have not quite done with it yet. When it is fully developed, wash it in a little clean cold water, and then hang it up to dry. When it is quite or nearly dry, apply a coating of clear gelatine solution, made by dissolving Nelson's patent gelatine in water, to the proportion of 1 oz. to a pint or a pint and a quarter. This may be brushed over. When it is quite dry, cut the print square or to the shape required, and then mount it by heavy pressure in the screw-press upon either damp paper or card. The picture side must, of course, be placed downwards next to the card.

When it is again quite dry, moisten the back of the paper on which the print was fastened with benzole; and now, after carefully inserting a knife round the edges, the paper may be lifted off, leaving the print permanently fixed to the card. This process is called "transferring;" there is no difficulty in performing it, and the prints may, by this means, be obtained upon any article to which gelatine will adhere.

A few hints will be of some use to aid in the successful practice of this process.

The tissue, before putting it into the bichromate, or as it is technically called, "sensitizing it," should be kept dry and flat. When sensitized, it may be kept rolled up, as damp will quickly spoil it. Considerable care should be taken to keep the sensitive tissue from the action of light, except, of course, that which is needed for the production of the picture. So long as the tissue is well covered with the India-rubber solution, it does not seem to matter much about its being applied evenly. Care must be taken, however, not to fasten the paper on to the tissue before the two India-rubber surfaces are well dry: about half an hour seems to be the time necessary for the evaporation of the solvent.

When the prints are in the water to be developed, the "covering" paper, as it is called, should not be removed by violence before it is ready to come away with ease, nor should it be left on after the time of its being loose. Not less than fifteen minutes' washing in cold water should be given before the prints are hung up to dry. Several prints may be developed in one dish, but care must be taken not to rub their surfaces, as they are tender while warm.

The best way to wet paper or cards for transfer is as follows: dip them one after another into a dish of water, and then place them in a pile on a sheet of glass, putting another piece of glass on the top, apply a weight, and so *equalize* the moisture.

The proper condition of moisture for effecting a transfer is seen by the surface of the paper being not *wet*, but just alimy with the water. Great brilliancy and finish may be given to the prints by giving them a final wash with Newman's sizing solution.

Carbon printing is a thing of easy performance, but, like all other photographic processes, it cannot be learnt without practice. There is a company formed for the more successful carrying out of carbon printing, and for the

supply of all the materials and instructions necessary. For all other information upon matters photographic—materials, chemicals, apparatus, &c., &c.—I can confidently recommend Mr. Jabez Hughes, of 379 Oxford Street, London.

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## PHOTOGRAPH PAINTING.

There are few things about which, as a rule, so little is really known by amateurs, as the art of Photograph Painting. Most people fancy it is quite easy work, requiring no special teaching or practice. But their very first attempt at it will show them at once that unless something is really learnt as to the proper colours to be used, the proportions for mixing them, and the way of handling the brushes, photographs will be very much better left uncoloured altogether. At the same time a little careful study of the rules for painting them, and a little patient perseverance in acquiring the lightness of touch so necessary, will enable any one to produce, out of ordinary photographs, delicately-painted pictures, which, when very highly finished, may hold their own even against miniatures on ivory—and, indeed, when falling far short of this perfection, will transform a common neutral and sepia-tinted photograph into a charming lifelike picture, valuable both to oneself and to one's friends.

I should think there is hardly one out of the many accomplishments learnt by young ladies in these days which can more often be turned into giving pleasure, and even comfort, to other people, than this art of photograph painting. For instance, what more valuable present could possibly be given to the dear old nurse than for one of "her young ladies" to secretly get possession of the ill-taken village photograph of her favourite grandson, serving his Queen far away out in India, whom old nurse hardly, perhaps, hopes ever to see again this side of the grave, and transform it by a little careful painting into a handsome scarlet-coated young soldier—to be proudly hung up on nurse's cottage walls, and shown to all the neighbours in the village, with the extra-proud announcement—"And painted by our Miss Annie, too!" I know of at least one case in which a certain "Miss Annie" is firmly believed to be one of the greatest painters this world has produced, from her having done just such a simple though kind little act for a favourite and faithful old servant.

But now, before I proceed to any instructions as to the painting itself, let me give my strong advice to the beginner in this pretty art not to commence by trying to make shift with any old colours and brushes which she may happen to find already in her paint-box. Disappointment will be the only result from any such attempts; for photograph tinting, like most things where very delicate manipulation is involved, requires that all the materials used for it should be of exactly the right kind. It is only a very experienced hand at the work who can make an old brush of a wrong size do the duty of a new one.

Therefore, the first thing to be done is to supply the colour-box with the following necessary materials; and I should recommend that, when possible, they should be obtained from Windsor and Newton, Rathbone Place, or from G. Rowney and Co., 29 Oxford Street. The outlay at first will be some few shillings; but, after all, it is about as little expensive a kind of painting as there is, for, once bought, the materials I am about to mention will last the most active amateur photograph painter a very long time indeed.

LIST OF ABSOLUTELY NECESSARY COLOURS.

• Rose Madder.	Carmine.	Cadmium Yellow.
Raw Sienna.	Cobalt.	Brown Madder.
Vermilion.	Vandyke Brown.	Sepia.
	Lampblack.	

Of course, as the student becomes more conversant with her work, there will be other colours she will like to have by her; but the ten I have mentioned will be quite enough for any one to begin with, and they can generally be bought in half, or even sometimes in quarter-cakes, which will materially decrease the first outlay. So much for colours.

The next things to be got are the smallest bottle you can buy of Chinese white: the cork to be carefully kept in this, even while you are painting and using it constantly, otherwise it will dry up and become almost useless; a small bottle of prepared oxgall; ditto of prepared gum-water; and a moderate-sized china palette.

Now, as to brushes. I have heard it said that to choose a paint-brush for another person is about as difficult a task as to choose a wife for a friend—and it is so far true, that I am quite certain that the young photograph painter, as soon as she has become at all at home with the art, will look over a tray of some dozen camel's-hair brushes, all professing to be of precisely the same size and with the same number marked on them; and in no time she will have set her affections on several, in direct contradistinction to all others, though to inexperienced eyes they will present no difference whatever. Still the beginner will want some instructions as to the sizes she requires to buy; and therefore I should advise her getting two of the finest-sized camel's-hair brushes to be had: one of these to be religiously kept apart from all others, to be used for stippling the face and hands only; the second one for all other fine work, of which there is always a good deal, especially in painting faces, such as parts of the eye, eyebrows, roots of the hair, and so on; two medium-sized brushes, and two good large ones.

With these materials before her, she may consider herself ready to start.

Quite the first thing to be learnt, however, before beginning to paint, is the mode of removing the glazed surface of the paper on which all photographs are taken. Till this is thoroughly done, no colour can be made to lie on the paper, but will perpetually withdraw itself into little round clots all over the photograph wherever an atom of the oily surface is allowed to remain. One of the large-sized brushes must be used, and the whole of the photograph must be carefully washed with a little oxgall and water. With

ordinary photographs this will at once remove all greasy surface from the paper; but where the glaze is very high, the process of washing may have to be repeated. This done, and the picture allowed to dry, the next step to take is to mix on the palette about equal parts of raw sienna and rose madder. Then, with one of the largest brushes, lay on a wash of the colour as evenly as it is possible over the whole face. Leave the wash a few seconds to settle on the paper, and then with a delicate light touch of the brush remove the wash from off all the high lights. These will, of course, be found on all prominent parts—nose, chin, portion of the cheeks, forehead, and temples—varying, it is needless to say, in their exact place according to the position in which each face may have been photographed. Let the colour that has just been put on thoroughly dry; then lay on a second light wash of equal parts of vermilion and rose madder, this time allowing it to remain on the high lights, as well as on the rest of the face. Next, with a medium-sized brush, define the lines of the eyelid, the nostril, and the mouth, and slightly deepen all the shadows on the face, throat, and ears with a little brown madder mixed with gum-water. Next wash the lips with carmine and a little cadmium yellow: the beginner should be careful not to paint the lips of an unnatural redness, and the cadmium yellow will prevent this a good deal; wash into the cheek, with a light broad touch, a little carmine, and the face will be ready for stippling. The eyes should be painted thoroughly first, as, the moment they are done, it gives instantaneous life and interest to the picture.

We will suppose first that it is a hazel eye which has to be painted. Wash the whole eye with Vandyke brown, mark the dark rim round the iris with lampblack, then paint the pupil black, taking care to use plenty of gum-water with everything that is put on the eye; finally, touch the light in the eye with Chinese white, being very particular to preserve exactly the shape which the spot of light has taken on the eye, and also that it is not made either larger or smaller than it is in the photograph.

If the eye to be painted is blue, cobalt must be used for the local colour of the eye. A little brown madder will make the blue into rather a greyer tint if desired, while a slight addition of cadmium yellow is also useful if the blue should look too intense. The same directions as regards the pupils, the rim round the iris, and the spot of light, of course apply equally to all shades of eyes. When the eye is thoroughly painted, mark the line of the eyelashes with a delicate thread of either sepia or lampblack.

The stippling of the whole face must now be commenced, and the flesh-tint very carefully mixed of raw sienna and rose madder, more or less of the raw sienna being needed, according to whether the complexion wanted is very fair or inclined to be dark. The student must now carefully stipple over the whole face, patiently working away at it, with hardly any perceptible amount of colour in her brush, till she gradually finds that the face is beginning to stand out, round and flesh-like, from the paper. Into the cheek must be stippled a little carmine, and, if the complexion is a dark one mix a small quantity of raw sienna with the carmine. When, as is often the case, one side of the face is in shadow, cadmium yellow and ver-

million must be used for these parts. It will lift the dark photograph shade up, while still preserving the effect of the shadow.

The hair should be washed evenly in with whatever colour the student finds she requires, taking great care never to put the paint on heavily enough to cover up the lights on the hair. Carefully deepen all the dark parts, using plenty of gum-water with the paint, and increase the lights by mixing a little Chinese white with whatever the local colour of the hair may be. When the hair and eyebrows are finished, mix some cobalt with a slight dash of raw sienna, just enough to give the blue a greenish tinge, and, with the smallest amount possible in the brush, stipple in this soft shadow-tint wherever the hair touches the face; also round the eyebrows, and at the edge of all shadows.

With regard to draperies, they may be said to be principally washed in, and the pupil will get to do that more or less smoothly as she progresses: it is only when there are very large surfaces to be covered when stippling is necessary in parts to give the proper effect of evenness.

I think I have now given the young photograph painter enough general information to enable her to make great way in the art if she will keep strictly to the directions to begin with. As she gains experience she will naturally make little deviations from my rules, according to that which she herself may consider different photographs require. When she has acquired the wonderful lightness of touch necessary for this kind of painting, she will often find that mixing a small quantity of Chinese white with the washes for the face and the flesh-tint for stippling will give a very much increased brilliancy and beauty to the complexion, and in the case of a dark and badly printed photograph, it will be almost necessary to make the picture a bright one. But let me strongly advise the beginner to content herself without attempting to add Chinese white to her colours until she is quite at home with the work; for until this is the case, the introduction of white will invariably result in disappointment and vexation, to find that with every touch she puts on she "picks" up again with her brush the colour that is underneath it. Let her, in beginning to paint photographs, of all things have patience. With some other kinds of painting a little superficial knowledge, and a certain amount of dashing touch, will often enable the novice to make some show of effect; but with photograph as with miniature painting, it is quite otherwise. Patience and perseverance are the only means to success; but let these be given, and the young painter may be perfectly sure she will end by succeeding beyond her expectations.

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## PAINING IN OILS.

Before attempting to paint in oils, it must be supposed that you know how to draw and shade correctly. Even then the better plan will be for you to perfect yourself in painting in monochrome before beginning colours.

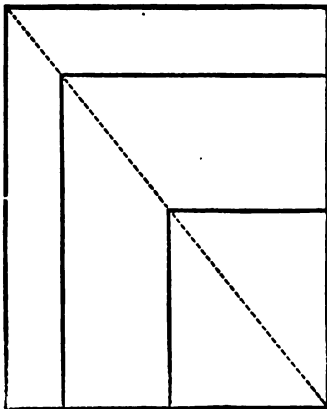
Monochrome consists of a mixture of flake white, ivory black, and raw

umber: a larger quantity of black in the shadows, should you require a cool colour; and of raw umber, should you wish it warm.

Copying from the antique, namely, statues or busts of well-known subjects, and the round, which means the object itself, is the best practice. Copying from the flat, or a drawing of the object, is, of course, much easier.

It is the same in copying pictures: an indifferent artist may make a very fair copy from a good painting, whilst her drawing from the life would be a daub.

To commence a painting in oil, procure a canvas the necessary size. Should you wish to reduce your copy from the original, you may easily do so in proportion by the following simple method: Take the exact breadth and width of your picture; then draw across it an imaginary line, and at whatever point you cross it with a parallel and horizontal line, that will be the correct size.



The best way is to put in your outline carefully with charcoal, even to the shadows, which you can rub in with your finger. Block the whole subject out in black and white, and when perfectly correct, trace the outline only over with a fine camel's-hair brush dipped in raw umber, made liquid by megilph (Robertson's is the best). When this is dry, dust off the charcoal with a cloth; or if you have messed it very much, wash the canvas clean with soap and water.

In washing your brushes, you will find soap and water—drying them afterwards on a piece of rag—far preferable to cleaning them with spirits of turpentine, which makes them hard; whilst soap and warm water leaves them as pliable as when new. Brushes should be washed every day after leaving off painting.



Having got your outline correct, you may next proceed to put on the paint. To do this, there is more than one way: either you may put on your colours at once, leaving the shadows



transparent in any dark colours, without mixture of white, which makes it opaque; or else entirely finish up the shading of your picture in monochrome, and afterwards paint the colours into a glaze. This, which is, I believe, the German school, I prefer myself, and will attempt to describe the way to do.

Having worked up your picture in raw umber and white until it looks like a print or photograph, proceed as follows:

For the face, the following tints will be required: first, three shades of flesh tint. For these, mix light red, cadmium yellow (or Naples, which is cheaper, but apt to turn black), and flake white. A very small quantity of the colours is required, in proportion to the white on your palette. Match the darkest shade by placing some of it on your palette-knife against the picture you are copying from, and then dab it on one side of your palette. Make the next shade lighter by adding a little more yellow and a great deal more white. The third in the same way, by adding yellow and white.

Now you have three flesh tints. Next you will require two or three of grey, made by a mixture of white and ivory black; two shades of pink, rose madder, and white; a little pure vermilion for cheeks and lips; and a little pure burnt sienna and crimson lake. (Pure vermilion put on in a few lines or spots will always clean up any part of your shading that has got to look dirty and messed together.)

These tints will be found sufficient to paint a face or hands.

Your next proceeding will be to make a glaze, by mixing Indian red with some medium—either megilph or varnish and oil—on your palette, and then rubbing it all over the face and painting into it. You will find this glaze—when the lightest flesh tint has been put upon the highest lights, and the others graduated into the shadows, with the grey and burnt sienna where the shadows are cool or warm—that your face is suddenly transferred into a painting from what seemed a print. Crimson lake, particularly in a child's or woman's face, is generally used pure just inside the nostrils and at the corners of the mouth, or a little Vandyke brown, if wanted still deeper in colour. If you observe the portraits by Sir Joshua Reynolds, he invariably used crimson lake in the nostrils and the corners of the mouth of his women and children. For men's faces, light red and white should be used for the mouth, instead of vermilion.

In painting the cheeks, whenever you use vermilion or rose colour, you should put a little of the same tint on the nose and chin of the portrait; otherwise it will not look natural, but as if painted.

It is usual also if the background is a sky to introduce a few spots of blue or grey into the shading of the face; or if the background is composed of trees, a little vermilion or flesh tint will be added to them. Never make a decided hard outline until you are giving the finishing-touches to your subject, but in all the first paintings blend your outlines one into the other, and paint the lights and shadows broadly. No detail should be attempted until the final painting, when your paint may be made almost liquid with megilph. Use as little medium as possible until the last painting.

Arrange the colours round your palette, leaving the centre clear for mixing

any that are required. If you have mixed more tints than you want at the time, you can always preserve them for days by transferring them from your palette to a piece of paper, and sinking this in a basin of water.

The palette should be cleaned by first scraping with the palette-knife and then wiping dry on a piece of rag.

Three paintings are generally sufficient for a picture, unless it is wanted to imitate an enamel, in which case it may take five.

Many artists, in order to heighten the effect of their colours, put the immediate opposite under it: for instance, scarlet under black, yellow under blue, etc.; since the same colour loaded on one painting over another will look very heavy. It is the same in using medium: varnish over varnish becomes sticky and heavy, whilst one coat placed over opaque colour, if quite dry, brightens it up at once and makes it look well; therefore it is the best plan to use as little megilph as possible until the final painting.

For black hair you will require ivory black, flake white, purple madder, and Vandyke brown. For light or auburn, burnt sienna, Vandyke brown, raw ochre, raw sienna, Naples yellow, and white. One or two of the same colours are used for the eyebrows and lashes. Black is seldom used by itself.

Hog's-hair brushes are used for the first paintings, afterwards very fine small ones and camel's-hair. A large beaver or softening-brush is required to bring the wet paint together and prevent hard outlines.

The following is a list of articles necessary for oil painting and the ordinary colours required:

An easel.  
Palette.  
Palette-knife.  
Scraping-knife.

Mahlstick.  
Canvas.  
Charcoal and crayon-holder.

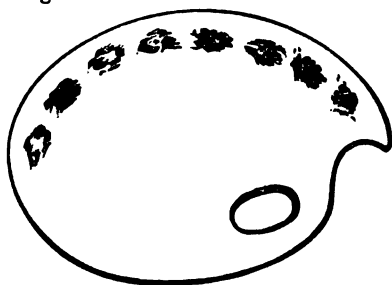
1 softening brush.  
6 camel's-hair and 12  
hog's-hair brushes,  
different sizes.

#### COLOURS.

Indian red.  
Light red.  
Vermilion.  
Rose madder.  
Purple madder.  
Ivory black.  
Flake white.  
Naples yellow.

Cadmium yellow.  
Chrome yellow.  
Terre vert.  
Emerald green.  
Indigo.  
Antwerp blue.  
Cobalt.  
Prussian blue.  
Megilph.

Yellow ochre.  
Brown ochre.  
Burnt sienna.  
Raw sienna.  
Raw umber.  
Burnt umber.  
Vandyke brown.  
Asphaltum.



It is quite impossible to say what colours, or mixture of colours, should be used to imitate what you see, particularly in nature; and many of the best effects of colour are arrived at by a happy guess.

The lesson Bruce gained from the spider is, perhaps, the best to adopt. Try again and again until you gain your object, and have managed to get the tint you wish for. Objects in the distance always look more blue than those near, and yellow lightens up a foreground and brightens it more than white.

Objects may be made to recede by rubbing over them a thin grey glaze composed of black and white and megilph. But with the exception that the materials are differently used on account of the highest lights being the most opaque in oil-colour, whilst in water-colour they are the least so, what applies to the one art applies to the other.

## PERSPECTIVE AND SKETCHING.

Perspective is the art of representing on a flat surface objects as they appear in nature, not as they are.

The first step towards comprehending the effects of perspective is to hold up a piece of glass, and look through at two parallel lines which are directed nearly towards us. A wall, the side of a house, or a straight road, the sides of which are well defined, will serve for this purpose. It will then be found that as these lines approach nearer to each other, if they are traced on the glass, the farther they are from us.

R-----S

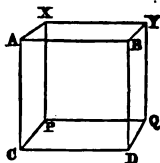


Fig. 1.

Unless we understand the most simple rules of perspective, all the drawings or sketches we make are painful to the eye of any real observer of nature.

The first proceeding in perspective is to fix on the *point or points of sight*, the point of sight being the point towards which the parallel lines in nature will each point.

The point of sight, as a general rule, is on the same level with the eye, and directly opposite where we happen to be standing.

We will first take the simple cube, that is, a block of wood or square box, to represent in perspective, as an example of one point of sight.

Suppose  $A B C D$ , Fig. 1, to represent a side of a box, this side being placed opposite to us, but slightly to the left. Having drawn the face  $A B C D$ , we will draw the horizontal line  $R S$  on a level with the eye, and mark  $s$ , the point on this directly opposite to us: the sides of the cube, viz.,  $D Q$ ,  $B Y$ ,  $A X$ , will all be directed to the point  $s$ , and if produced would meet there. Supposing the cube to be transparent, the sides  $C P$ ,  $P Q$ ,  $P X$ , would be visible, as shown in the diagram.

We will next take for example the interior of a room, the floor of which is boarded, to show the effect in perspective of parallel lines. Suppose we are standing at  $x$ , Fig. 2, then the height of the eye marked at  $s$  would be the point of sight.  $A B$  being the breadth of the room, and  $A G$  the height,

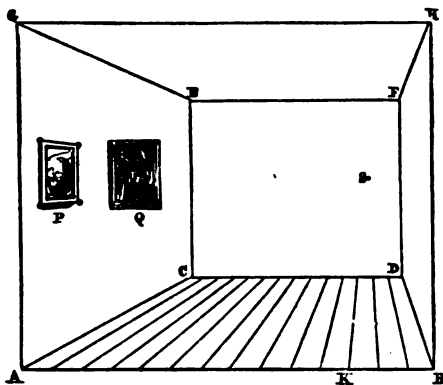


Fig. 2.

the lines  $A C$ ,  $B D$ ,  $G E$ ,  $H F$ , are all directed towards  $s$ , and if produced would meet at  $s$ . Each of the boards also has its sides directed towards  $s$ , and thus appears to decrease in breadth the farther it gets off. As an example of the painful effect of bad perspective, two pictures are shown on the walls, one,  $P$ , drawn so that the sides, if produced, would meet at  $s$ ; the other,  $Q$ , so that the sides are parallel to each other: the picture  $Q$  at once appears unnatural.

When we have to represent any objects of uniform size on a plane or horizontal surface, such as the sea, for example, our horizontal line will be

the distant sea horizon; then this horizontal line will cut the masts of the vessel, or the shoulders of the men, or any objects we may represent, at exactly the same height. Thus in Fig. 4 there are four ships of equal size, each farther off than the other, but the horizontal line must cut the masts of each at the same height, as shown at A and B.



Fig. 3.



Fig. 4.

Again, if the vessels are the same length, and are anchored or sailing parallel to each other, we must draw these between two lines which converge and meet at the point of sight.

These are a few of the simple rules of perspective, which must be attended to in all sketching or representations of nature. Unless we do this all other portions of a sketch are mere failures as representations of nature, and are unpleasant objects for a skilled eye to look at. We will next consider

### THE APPLICATION OF PERSPECTIVE TO SKETCHING.

Nearly every person either sketches or would like to be able to do so. To carry in the pocket a sketch-book, and to be able to represent the country in which she travels, is a very general wish. Too many persons are, however, deterred from this amusement because their sketches are very unsatisfactory, or take too much time and trouble. The common error of young would-be artists is to take too much trouble about their drawing, to put too much on the paper, and to think too little about the meaning of their lines. A sketch may be made in pencil, and need not take more than five minutes, nor require more than a dozen lines. Here is an example:

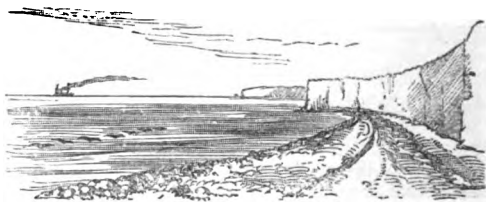


Fig. 5.

A line of cliffs is here shown, with a portion of beach and the distant horizon. The cliff-line where it approaches us is drawn towards the point of

sight of our sketch, and by this means we obtain the appearance of distance. Again, on the beach we have two or three lines, which as they approach us separate farther from each other, just as in the example of the boards in a room in Fig. 2. If we count the lines in this sketch, we find there are two for the cliffs, three for the beach, and one for the horizon, making six in all. Two or three strokes on the cliff, showing jutting-out portions, merely add to the form of the cliffs; without these we have a sketch of a coast.

Another point to which we may call attention is that all circular lines on the ground appear ovals when seen from a distance; thus a circular bay in our coast sketch becomes a portion of an oval when put on paper.

When any additional life is required in a sketch, we can give this by many means—a man or a tree, a boat or an animal, may all serve our purpose. A flock of birds are represented in our coast sketch, but these are put in perspective; they get smaller and smaller as they are farther off, just on the same principle that the small vessels did in Fig. 4; and these few items make up a coast sketch which is, at least, not offensive to the eye—for that which truthfully represents nature is never unpleasant to look at, whilst that which falsifies her is ever hurtful to the eye.

A sketch of undulating country is usually very attractive, but is considered by the young amateur very difficult. The fault here is usually attempting too much. There is an endeavour made to put in *all* that is seen, instead of only the most prominent items.

We should first draw some six or seven lines across the paper, and meeting each other, as shown in the annexed figure, the lines nearest to us being



Fig. 6.

dark and bold, whilst those more distant are finer, these lines representing the undulations of the country.



Fig. 7.

On these lines we may build up our various objects, taking care that they graduate in size according to their distance. The annexed sketch represents

some filling in added to the lines, and would occupy about four minutes in execution.

The lines of a sketch may be divided into three classes: those for the foreground should be bold, those for the middle distance medium thickness, those for the distance very fine and delicate.

Sketching obliges us to be great observers of nature and of natural objects, and we can then represent even from memory such things as vessels or animals, vehicles or trees; but we should, whenever possible, make accurate sketches of any objects which indicate distinctly any locality. Thus the fishing-boats of seaports, the lobster-pots of the coast, any peculiarly-shaped building, &c., are all valuable reserves, for a fishing-boat may be found wonderfully useful to give life to an otherwise dull sketch, but this boat must be accurately drawn from any point of view to be of real service. If we have by practice acquired considerable skill in representing any particular objects, such as horses, cows, men, or boats, we need not hesitate about placing these in the foreground of our picture; if, however, we are not skilful in these details, we should place these farther off, or not draw them at all.

Cows and horses add greatly to the lifelike appearance of a rough sketch,

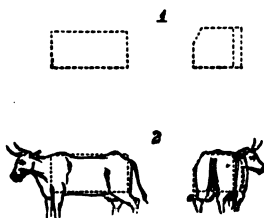


Fig. 8.

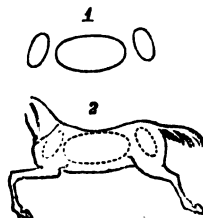


Fig. 9.

and both these can be very readily obtained in the following manner: For cows draw rectangles, as shown in the annexed Fig. 8, with two detached lines as there shown. These serve as frameworks on which the cows may be built, as shown in Diagram 2. Groups of cows may thus be roughly sketched, and with good proportions, especially if attention be given to details. Again, for a horse draw three ovals, as shown in the annexed Fig. 9; then on these build an outline as shown in Diagram 2, all the detail being a mere matter of care and observation.

There are few amusements which call forth more observation than sketching, and few which repay us better. A sketch-book is always interesting: it recalls past scenes and country; explains often better than pages of writing the style of country in which we have travelled, and, in fact, is a pictorial history in itself. In a long experience we never yet heard any person capable of sketching say that he found his skill of no amusement or use, whilst

hundreds have stated that they were never at a loss for occupation as long as they could sketch. Again, regrets often repeated have come to our ears from those who, not capable of sketching, have lamented their want of early attention to this art, and who have frequently remarked that, had they only been able to sketch, they could have delighted scores of their friends by a representation of the strange scenes they had witnessed.

[Great correctness is required in sketching, as accuracy of detail and perspective form the basis of a good art education, and are daily becoming more valued in an artist.

In order to sketch trees faithfully, it is well to study an avenue of them in winter, when the leafless boughs present their peculiar characteristics, and the perspective of the diminishing trunks is more clearly revealed. The foreshortening of the branches may then be practised also with greater ease. Take every opportunity of sketching that you can secure, and use any instrument that may come to hand—either pencil, brush, or pen. The greater practice you have in sketching the greater will be your facility in the art. A note-book and pencil can always be carried in the pocket, and should be often used whenever the occasion presents itself. From its pages many helps may be derived in making finished drawings.

As an example of industrious and accurate sketching we may refer you to the collection of Mulready's pen-and-ink sketches, hurriedly done at spare moments on any scrap of paper he chanced to have—sometimes an old envelope—now exhibited on screens at the South Kensington Museum.

You will see by these that good sketches are quite equal in interest to finished pictures, and that artists of the greatest genius do not disdain painstaking observation and care in preparing for future works of art.

We advise you to study perspective in books and by practice on days when outdoor sketching is impossible; and it is not a bad plan, after having made a careful drawing in perspective, to repeat it by hand alone, and then compare it with the ruled and measured original, thus testing the accuracy of your eye.—*Editor.*]

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## WOOD ENGRAVING.

Wood Engraving may well be called a time-honoured art—its origin can scarcely be traced. This much we know, that in the days of Moses the Egyptians used engraved woodblocks to stamp their bricks, and that it was practised by the Assyrians, and also by the Chinese, at a very early period. In the middle ages we find it playing an important part in Europe; but its fuller development was reserved for the nineteenth century, when, the demands of a picture-loving public having become exceedingly great, this process was acknowledged the only one known by which good prints could be produced rapidly enough to meet them.

But it is with the practical part of this art, and not with its history, that we have to deal.



In the first place, the woodblock is cut crosswise from the log of box tree, and when printed, if properly prepared, will give a solid black impression, thus:



To produce a variety of tints or forms out of this solid surface is the engraver's work.

The block, as purchased of the preparer, will be found to have a somewhat glossy surface; this must be covered with a thin coating of Chinese white mixed with water, and rubbed with the hand while wet till quite even. When perfectly dry it is ready to be drawn upon. Draw with an HHH pencil. Let all the lines be clear and decided, the object of the engraver being to cut away all that is left white, leaving only that which is covered with pencil-marks standing in relief, without bruise or damage.

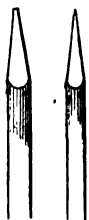
#### TOOLS AND MATERIALS USED IN WOOD ENGRAVING.

Sand-bag	Chisels	Burnisher
Gravers	Eye-glass	Turkey stone
Tint tools	Jeweller's globe	Slices of prepared box-wood
Scorpers	Inking dabber	

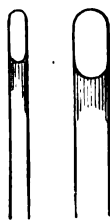
The sand-bag is not only most useful to rest the block on, but it enables the engraver to turn the block easily, which is of great importance in cutting curved lines, the turn of the block being thus made to meet the graver.



GRAVERS.



TINT TOOLS.

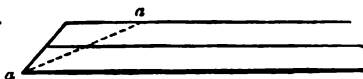


SCORPERS.



CHISELS.

The four kinds of tools used are here shown. Of the tint tools the greater variety will be wanted, as each different tint requires a different size of tool. They can be purchased fixed in handles ready for use. The angle of the end, or cutting part of the tool, should be about the same as that shown by the dotted line *a*:



Your block should be covered with paper to preserve the drawing, exposing only the part you are at work on. It should be held in the left hand, and



rested on a sand-bag, while the graver is held in the right hand, resting on the thumb as indicated, to give it steadiness and you precision of touch.



The graver in handle is represented as ready for use, and is such as is required for outlining facsimile work or cutting cross-hatch. It is necessary



No. 1.

to outline the lines giving form, so that when the shaded parts are cut close the perfect line will be preserved. We here give an example: The white line on either side of the upright scribble is the outline: it is exaggerated in No. 1, to show the method. It is usual to outline with so fine a graver, that when the tint or shading is cut the outline cannot be seen (No. 2). The scorpers and chisels are



No. 2.

used for clearing away the larger parts of the wood after all has been properly outlined and engraved. It is better to leave this clearing away till the last, as the pressure required is apt to rub the drawing—a thing most carefully to be avoided under all circumstances.

To cut what is understood as a simple tint you will use the tint tools, which must go right across the part to be cut, thus:



The white lines are the incised or cut lines; the black, the solid wood left standing. In cross-hatch work you will use the lozenge-shaped graver, entering at angles, and taking out the white bits, as here shown:



Tints are produced in a variety of ways; but two examples, both of which are graduated, will here suffice—No. 1 produced by straight lines; No. 2 by cross-hatch. The manner of No. 1 is more suited for sky, distances, building, or any object where a polished or smooth surface is wanted; No. 2 for drapery, or objects where texture is required.



No. 1.



No. 2.

The variety of styles and manner of their application will easily be seen by reference to the engravings in the HOME BOOK.

In what is understood as facsimile work every line must be carefully gone round on each side with a lozenge-shaped graver, and the white parts neatly cleared away with the scorper. As a first attempt try something in this manner:



Do several such bits till you get power over the graver, gradually making your drawing more and more elaborate, but keeping to the facsimile style. Then do several bits of simple line tint of various shades; thus you will get some knowledge of what your tools will do; and when you feel that you can cut a steady line, try such a work as is here given. You will observe that

various shades are shown; these are cut with gravers of different sizes; and observe also the various thicknesses of the black lines necessary to produce the effect required.



An eye-glass is useful in engraving the finer parts of a drawing. It is best to look through it with both eyes, otherwise the eye used will be overstrained. The glass is the same kind as those used by jewellers and watch-makers. A very simple stand is made for the glass, which leaves both hands free for work.

For night-work a jeweller's globe filled with clear water slightly tinged with blue or green colour should be placed under the lamp, in such a position that the ray of light is concentrated and thrown on to the block, or on the part of it which may be uncovered for working upon.

When the block is finished, the engraver takes an impression of it in the following manner: A small portion of printer's ink is put upon a white plate or slab; this ink is to be evenly distributed on a small dabber covered with silk or kid leather—the latter is best—and then dabbed over the engraved block. When this is done, a piece of India paper is laid on the block, a thin card is put upon this, one end of the same being held in the left hand, whilst the burnisher is used with the right on the card, which must be carefully moved from one part to another till the entire subject is transferred to the paper.

The art of wood engraving is an art not easily to be acquired, even under a master, and the difficulty of learning it from any written description, long or short, must necessarily be still greater. Drawing on stone or etching upon copper will be more easily acquired, and will give more encouraging results to the amateur. The technical part of wood engraving seems to demand nothing short of an apprenticeship; and although some knowledge of its practice cannot but be highly interesting and instructive, it is as well to understand that nothing short of great labour and close application will give the chance of a profitable result.

## WOOD CARVING.

Wood carving, as a suitable accomplishment for girls, has not, as yet, taken the rank to which we consider it to be fairly entitled. In regard to other pursuits, when a child shows signs of talent in any particular line—such, for instance, as music or drawing—it is fostered and encouraged as much as possible by those around her; but if the said talent be for carving or sculpture, it is quite another matter, and is usually considered as a sort of offshoot of drawing, which may possibly, by careful lopping and pruning, be trained into a proficiency in sketching, painting, or any other of the more legitimate branches of draughtsmanship. If this can be done, well and good; but if the attempt fail, and the child persist in the use of the mallet and chisel, the poor young beginner has to cultivate her talent as best she may, without the aid usually granted to other and more conventional pursuits. Many persons would also discourage her, on the ground that it is not altogether a desirable or ladylike employment, alleging that it has a tendency to encourage tomboyism in the child, and to render the girl unfeminine when grown up. Should this unfortunately have been their experience, we feel sure that the root of the fault lay in the girl herself, and not in her occupation—the germ of unladylikeness was innate, and would have worked itself out, whether the tool were a crochet-hook or a chisel. As a branch of sculpture, carving deserves our best consideration. It is certainly an inferior branch of that greatest of all arts; but everything must have a beginning, and a real talent of this sort, if properly cultivated, might eventually lead to greater things. Not many girls can hope to rival Miss Hosmer, the famous American sculptor, whose statue of Puck obtained such praise at the Exhibition of '62; but, on the other hand, how few are there, even amongst our best amateur painters, who ever expect to become Richardsons or Rosa Bonheurs! Indeed, to attain distinction either as a painter or as a sculptor is a very difficult matter; but certainly, of the two arts, sculpture has the advantage, from there being fewer persons journeying on the same road to jostle and overtake you by the way; therefore we cannot but think that they who possess this comparatively rare talent should cultivate it to the utmost. These few pages are written with the view of helping those who have all the will to become good carvers, but are a little at a loss about the way. The will being, however, the principal thing, the latter will soon be acquired by practice and perseverance, which last quality must, we all know, be brought to bear upon everything we undertake, but in nothing more than in carving, for without it there can be no real success. The old story of the Bruce's spider is a capital example to beginners, teaching them patiently to try and try again, without despairing; for it cannot be denied that at the onset you will find it up-hill work, and you must also expect many failures before good work can be "turned out," to use a workman's phrase. This plain speaking and setting forth of difficulties will not, we trust, serve to discourage any of our readers who may be really in earnest, but simply to frighten away those who would, as

they express it, "take up" carving as they have probably already "taken up" half a dozen other pursuits, whose fate it would doubtless share—namely, be thrown aside at the end of a month, to make way for some still newer employment. This habit of doing, or, we should rather say, thinking that they can do or learn a little of everything, is the great fault in girls nowadays. They heap one duty or amusement upon another, until it is simply impossible that sufficient time can be devoted to any one study, so as to enable them to acquire even tolerable proficiency; and this is the reason that we so often see bad work, whether mental or manual, pass muster: we do not mean bad as compared with some one else's work, but bad in proportion to the talent and power of the girl herself. Ruskin inveighs strongly against this practice, and speaks very plainly, in his "Elements of Drawing," on the necessity of doing nothing short of our very best, in whatever work we take in hand. It would be well if every girl were to read his book, for she would there learn the right spirit in which every new pursuit, whether it be carving, drawing, or anything else, should be undertaken.

And now to pass on from the theoretical to the more practical part of our subject. A real genius for carving will show itself at a very early age, by the child spending its half-holidays playing with carpenter's tools, and by a general hankering for pen-knives, and inclination to hoard up scraps of wood, or anything in the shape of a tool, on which it can lay hands. Perhaps few children would be allowed, however great their latent talent might be, to endanger their eyes and fingers by following their own inclinations in these matters; nor, indeed, would they gain much were they permitted to do so, as little good work could be expected from such young hands; for, if we remember rightly, the boxes of which in those early days we were so proud, would bear none but the gentlest usage, and our paper-knives (by courtesy so called) answered their purpose but indifferently well; but they were the best of which we were then capable, and had at least the merit of forming the first step of that ladder, of which each success, and indeed we may say each failure (if the failure be of the right sort, making us only the more determined to succeed in the end), brings us nearer to the top. Dexterity in handling one's tools is more easily acquired by beginning as a child than when older; but in other respects it is as well, and perhaps better, not to attempt much in the carving line until the age of fourteen or fifteen. But then you have probably little time which you can call your own, the greater part of the day being occupied with lessons and necessary employments, so that half an hour, or perhaps even less, is all the time you can spare for your carving; this, however, is ample, for had you the whole day at your own disposal, an hour is the most you should allow yourself to spend in this manner, for you will find it hard tiring work, until you have become accustomed to it. If you are growing rapidly, you must be particularly careful that your work-table be made high enough to prevent the necessity of stooping over your work, and also to avoid the bad habit of resting or pressing the wood against your chest, which is very hurtful, as in course of time the bone is pushed out of its place. You will find it an advantage, if you can accustom yourself to use both your right and left hand equally well, for by

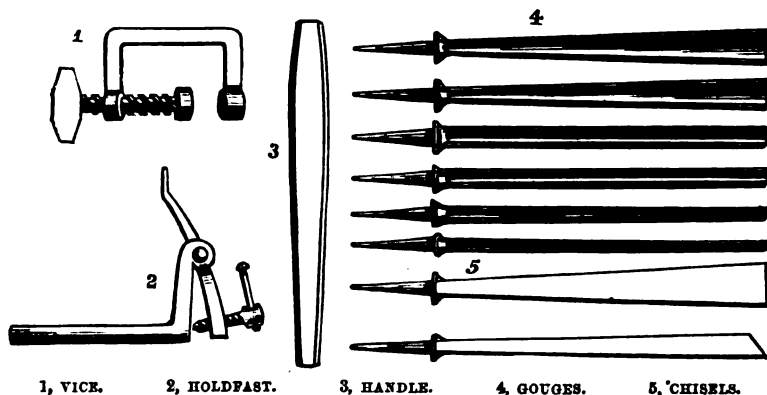
so doing you will counteract any tendency of the right shoulder to "grow out," as the phrase is, by giving equal work to the muscles of the left side and arm. Besides this great consideration, there are also many minor ones, such, for instance, as supposing you were at work on a large piece of carving, it would progress far easier and quicker if you had two able hands, instead of only one, for you could then go from one part to another without changing the position of either yourself or your wood. Another benefit of having both hands available is, in case you should cut or hurt yourself, as beginners are very apt to do, you can bind up the wounded hand, and supply its place with the other until it is able to do its own work again. Perhaps this may seem a cool way of speaking of your injuries, but to be a thorough workman you must make up your mind to a few cuts and scratches, and not (as do some young ladies) think it necessary to faint or scream at the sight of a little blood; however, it is right to take every precaution against injuring yourself, and one great safeguard is, never to carve without a vice to hold your wood firmly, for by having both hands at liberty to guide the tool, you can work with much greater ease and safety; wearing gloves is also a protection, as it saves the hands from many knocks and bruises while engaged in sawing or any rough work. The gloves should be provided with stout gauntlets to cover the wrist, which is the part most liable to injury. Girls as a rule do not care greatly about the preservation of their clothes, but as their friends are probably not so indifferent on this subject, it is advisable that they should wear a thick chamois-leather apron while working, made with a bib to protect the front of the dress, and a deep pocket to hold tools, &c.: add to this a pair of balloon sleeves of the same material reaching above the elbow, and the equipment will be complete, and many scoldings on the score of cut and dirty dresses avoided, besides adding much to the carver's own comfort. Few of our readers probably are fortunate enough to possess a room that they can devote entirely to their carving affairs: a corner of the play-room, or perhaps part of an outhouse, is the most that they can expect; but however small the allotted space may be, at least they can find room for their work-table, and concerning this table it is necessary to be very particular. A common ricketty thing won't do at all; it must be a carpenter's bench in miniature, and made as heavy and strong as the size will permit, and should not be less than 3 feet by  $1\frac{1}{2}$  foot, but if the space will admit of its being made larger, so much the better. Any common carpenter could make it, and it should be fitted with a rest and screw, and in all respects similar to the one he uses himself. It should be made of some common wood, such as deal or elm, which may be cut and hacked without compunction. This, with the addition of a stool, and a box in which to keep tools and odds and ends—or, better still, a lock-up cupboard—is all the carving furniture required. We take it for granted that many of our readers are accustomed to get their governess or mother to spend an occasional half-hour or so with them in a carpenter's shop, for from watching him at work the use of some of the simpler sort of tools, such as the saw, hammer, gimlet, &c. (all of which knowledge it is well to acquire before you take to your carving tools), may be gained. And, supposing the carpenter to be

intelligent and communicative, there is much besides the manual part of his business that you may learn from him with advantage; as, for instance, the names and qualities of the different woods which he uses in the course of his work. All information of this kind you will eventually find of the greatest value, in enabling you to choose and prepare your own carving materials. It is wrong for any one, but especially for growing girls, to overtask their strength, and therefore we would advise you to employ a carpenter to do any really laborious work that you may require; but the lighter sort of carpentering you ought to do for yourself, even should you find it uninteresting and wearisome, for it is capital practice, and the handier you are in doing this rough work, the easier you will find it to manage your carving tools. We do not mean to say, by this, that those who are already artistic carvers should waste their time in preparing their own wood, but simply to recommend the novice, who is not as yet *au fait* at the work, to lose no opportunity of improving herself; for it is precisely while "roughing out," or getting your block of wood into shape, that the firmness of hand and command over the mallet and chisel are acquired, which makes all the difference between a good or a bad worker.

Of carpenters' tools, all that you would require would be a medium-sized saw, a spokeshave (which answers the purpose of a plane and is much easier to use), a few rasps and files of different sizes, not forgetting a triangular one for sharpening the saw, and a wooden mallet weighing about 2 lbs., though this properly is more of a carving than a carpentering tool. As to hammers, planes, &c., you would find them of little use. All these common tools can be bought at any ironmonger's; but it is a more difficult matter to procure good carving tools, for, although you will require but few at first, and those of the simplest kind, yet great care should be taken in the choice of them. The best are usually made of wrought iron, in order that they may be springy and pliant. One of the first makers is Addis, of Worship Street, Finsbury: any tool bearing his stamp you may be nearly certain will prove a good one. They can be procured either at the manufactory or from Buck, tool and instrument maker, in Tottenham Court Road; where can also be bought every description of carving materials, such as grindstones, hones, sand-paper, &c. The latter article should be used very sparingly by a carver; in fact, it is only allowable for polishing the blades of paper-knives, pedestals, &c. Buck also makes turning lathes and other tools of the most tempting description; but of course these cost a great deal of money, which last item being doubtless a consideration to some of our readers, they will be glad to learn that the simple tools such as they require are comparatively inexpensive, the cost of an ordinary-sized gouge, with handle complete, varying from 1s. 2d. to 2s. Half a dozen of these small gouges, a couple of larger ones for rough work, and one or two flat chisels, will be ample to begin with. Chisels are not so useful as gouges, but it is better to get some, as there are cases in which they are necessary, such, for instance, as cutting a perfectly straight line. For scooping or cutting away the wood, a very slightly fluted gouge, about  $\frac{1}{4}$  inch wide, is the best for the purpose, unless you are using a mallet, in which case your tool must be a size larger. We



would advise your accustoming yourself to work as much as possible with a mallet; for, though at first you may find it a little awkward, you will soon get into the way of using it, and it will save you much unnecessary labour. The size of your gouges should vary from  $\frac{1}{2}$  inch to  $\frac{3}{4}$  inch in width. Do not buy any curved or crooked tools—spoonbits is the technical term for them; for, although they may appear convenient and easy to use, they are not so in reality, and moreover give more trouble than they are worth, on account of the difficulty of resetting them. You can get the tools without handles if you prefer it, and make them at home, which is a much cheaper plan; but take care that the handles be small and smooth, otherwise they will gall your hands. Many carvers prefer using short tools, but this, we think, is a mistake; for, naturally, the nearer you are to your work the



1, VICE.

2, HOLDFAST.

3, HANDLE.

4, GOUGES.

5, CHISELS.

greater strength is required, on the lever principle, which made Harry, in "Sandford and Merton," prefer the long stick to the shorter one when rolling his snowball. To country customers, Buck will, if desired, send a priced list of tools, &c.; but it is more satisfactory to go to the shop and choose them yourself, or it would be better still if an experienced carver would do so for you. Hollzappfel, in Charing Cross, is also an excellent toolmaker; but as it is a far more expensive shop than Buck's, we do not advise our readers going to him excepting for their knives, in which particular line he is unrivalled, surpassing even the far-famed Rogers. In choosing a knife intended solely for carving, be careful that the handle be long, and the blades short and stumpy, and not pliant. He also makes a knife especially for carving purposes, but an ordinary pen-knife is much more useful.

And now, having provided yourself with these necessary tools, the next thing to be thought of is how to keep them sharp and in good working order. For this purpose you will require a small grindstone, about 8 inches in diameter, fitted with a handle and turning in a water-trough of either

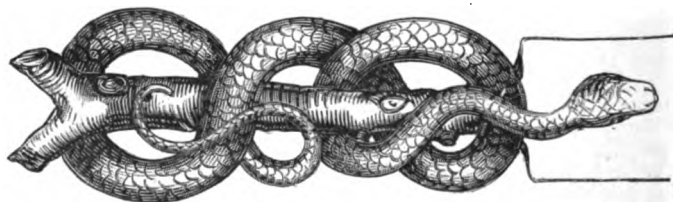
wood or iron. In addition to this, you will want a few slips or pieces of common freestone, and three or four hones, varying in thickness to suit the sizes of the gouges, which are sharpened by being rubbed on the round edge of the hone, which should be moistened with oil or water; but the freestone is more efficacious when used dry. You will find the task of grinding and setting your tools one of the most difficult, and certainly the most tedious, part of carving; it is, however, a difficulty which must be overcome, for until you learn to depend wholly on yourself in this matter you can never become a good carver. Your tools would be unfit to use were you to trust them to a common cutler to be reset, for he would treat them as if they were carpenter's tools, and grind them with a sharp edge on the outside: this would be quite wrong, for the broad rule to follow in regard to carving-gouges is always to grind the upper or concave side, leaving the convex part untouched until quite the last, when it may be passed over the hone or razor-strop a few times to set the edge: when finished, the gouge should be in the shape of a thumb nail—that is, with the corners sloping slightly away, but not rounded. Before leaving the subject of tools, we must again urge on our readers never to carve without a vice or holdfast: the screw belonging to your bench will do very well for rough work, but for other purposes we should advise your procuring a small metal vice, which can be screwed to the edge of a table without injuring it, and also a Buck's "patent holdfast," which consists of an iron bar that fits into a hole made for the purpose in your working bench; attached to this bar is a long arm, which is raised or depressed by means of a screw.

Should some of our readers be unable to buy all or any of the tools we have mentioned, we would not have them on that account be discouraged, for where there is a will there is a way, and we have seen much beautiful carving executed by untaught artists by means of the rudest and scantiest tools. Conspicuous amongst the wood sculpture in the Exhibition of 1862 was an altar-piece in bas-relief, after an old picture, the work of a man who had been formerly a shoemaker. Although endowed with a remarkable genius for carving, yet, being very poor, he was for some time without the means of providing himself with the proper tools; but he overcame this obstacle by tempering and grinding some of the awls which he used in his shoemaking business, and in this manner he contrived some very passable tools, and with them he carved several beautifully finished bas-reliefs: so fine and minute were they, that only by the aid of a magnifying glass could the extreme delicacy of the work be appreciated. In the early life of Correggio we find another remarkable instance of talent and perseverance overcoming all difficulties. We read that when he was quite a little fellow, on being sent one day into the forest to cut firewood, he astonished his parents by returning home, not, as they expected, with a load of faggots, but carrying instead a roughly carved figure of the Madonna and Child, which he had fashioned out of a log of wood, his only implement having been a common knife. To those who, like Correggio, are short of tools, we would suggest, that a tenpenny nail makes a very fair substitute for a chisel, if heated red hot, and then plunged into cold water to temper the iron, and

afterwards ground into shape and fitted with a handle. This is one of many contrivances for supplying the place of regular tools which will no doubt occur to the needy and ingenious carver. Very little decided advice can be offered touching raw materials, wood, &c., as so much depends on the style of carving, which your talent and inclinations lead you to prefer. Ebony, box wood, holly, and *lignum vite* are all hard close woods, and, as such, are well suited for small objects demanding great delicacy of workmanship. The only drawback to woods of this kind is the extreme difficulty of procuring them in large pieces tolerably free from shakes, which is the technical term for cracks, and they are also more expensive than English-grown woods, being chiefly imported. Ebony and box are usually sold by weight; the former is about sixpence per lb., and the other somewhat less. Any good turner would probably have a supply of these hard woods, which are used chiefly in their trade. The wood usually employed by foreign carvers, but especially the Swiss, is walnut, or lime wood stained brown in imitation of walnut; but a really artistic workman would scorn the notion of staining or varnishing his work. The latter practice is especially objectionable, as it fills up the interstices and takes off the sharp edges, which constitute the chief beauty of good carving. The only application admissible is a little oil rubbed in with the hand or a hard brush. As to colouring, it is sometimes necessary if you are engaged in repairing or adding to any old oak carvings, in order that your work may match the original; but what we object to is the trickery of passing off deal or any common wood for oak or walnut: it never has the desired effect, for any one can detect the sham. We must remark, by the way, that deal is by far the worst wood you can use, as from its extreme softness it is very difficult to make a clean stroke. We would warn you against taking any Swiss carving, even of the best description, as a model or guide; for though when seen from a little distance it may seem very good, yet, on closer inspection, a critical eye will discern many flaws and imperfections; for if it be possible to glue or nail on any part rather than take the trouble of carving it out of the solid piece, these Swiss workmen will do it. It may seem unkind to blame these poor people, whose bread depends on the sale of their knick-knacks, yet we must say that such a dishonest style of work cannot be too much deprecated and avoided; it is, in fact, what a good workman would describe as "scamping," which is a most expressive word, signifying work of any kind, whether carving or other, that is slurred over by a dishonest person—a "scamp," who, instead of doing his business honestly and thoroughly, will not work a stroke more than is absolutely necessary. For large pieces of carving walnut wood is very suitable and handsome, but in many respects it is not to be compared with oak, which, in point of effect and pleasantness to work upon, is the best wood we know; it is also especially fitted for all descriptions of ecclesiastical carving—indeed, little else is employed for that purpose. Foreign oak is considered the best by professional carvers, as it is of a more uniform colour, of a closer grain than our English wood, and less liable to flaws or knots. American walnut is also preferred for the same reason. In choosing and preparing wood which

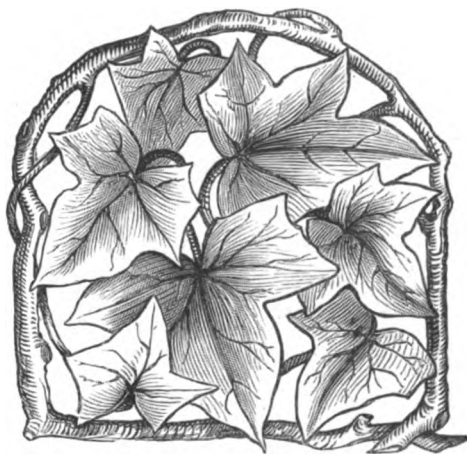
you intend for immediate use, be very careful to select that only which has been thoroughly shrunk and seasoned, otherwise you will have the vexation of seeing your work warped and cracked before you have half finished it. For this reason it is always advisable to have a stock of wood by you, for then you will ensure its having been kept a sufficient time. And even should the block from which your piece be cut have been seasoning for years, it is safer to prepare the wood a month or two before it is required, as a sudden exposure to the air will frequently cause freshly-sawn wood to open slightly. A dry outhouse or cellar, where the sun cannot penetrate, is the best place for your store. For carvings on a large scale, such as an altar-piece or anything of that kind, the wood must be in two, three, or four parts, according to the size required, joined or mortised together; this should be done by a clever carpenter or cabinet maker, as it is a difficult operation, requiring very careful work. You should study your subject thoroughly, and then arrange the joins, so that they may be concealed as much as possible by the carving; this is a point of special importance, should your design be in figures. Not being acquainted with the capabilities and tastes of our readers, it is impossible to give more than a general idea of the manner in which we should recommend them to set to work; indeed, it would be difficult at any time to lay down definite rules on the subject—one method may succeed with one person, and yet be totally unsuited to another; take as an instance two girls beginning to carve from the same model, the subject being, perhaps, a branch of foliage, or a figure in bas-relief: one girl having learnt to draw will take her pencil and make an exact sketch of the copy before commencing her work, while the other girl, if desired to do the same, would make a complete failure of it, and perhaps give up the whole thing in disgust, whereas, probably, if she threw aside her pencil and set boldly to work with mallet and chisel, her handling of the subject would be as successful, or maybe more so, than the first girl who proceeded with more circumspection. By this you will understand that although a knowledge of drawing and perspective is undeniably useful, yet it is by no means essential to a carver: a naturally correct eye will be of more use to you than any number of drawing lessons. It is better, and in some respects easier, for a beginner to carve from Nature, avoiding all architectural or formal designs until some experience and firmness of hand have been acquired. A few simply-formed leaves or a spray of common ivy make the best study possible, and if kept in water they will last fresh long enough to enable you to copy their beautiful shape, ere they fade and shrivel. To work thus from Nature would, if you were doing an elaborate piece of carving, be out of the question; but by constantly studying in this manner, in a short time your memory will be stored with a variety of graceful forms on which you can draw at pleasure when occasion requires. You should always if possible turn your work to some account rather than carve solely for practice, for you will take double trouble with it if it is to serve some purpose when finished. If your design be only the few leaves that we have mentioned, at least let them be twined round a little picture-frame or paper-knife handle. Those who prefer a bold style will find a bracket to fix against a wall quite

within the powers of the beginner, as it allows of much roughness of execution combined with a good distant effect. A grotesque head or mask like the *gurgoyles* we see on an old church—an angel or bird with outspread wings—any of these designs would be very suitable; or if you are not yet “up” to figures, some leaves of the hart’s-tongue fern, gracefully and carelessly arranged, would be easier, and at the same time very pretty; a bunch of grapes resting on a couple of vine leaves with tendrils entwined would also look well, though perhaps the subject is too hackneyed. One other design we must mention, and that is an owl perched on a rough branch, ivy leaves forming the background: this, besides being effective, would have the additional merit of quaintness. A bird stuffer could supply you with a model, for owls are such stupid birds that they look much the same dead or alive. Dead game is almost the finest subject for carving which we have, but as it requires first-rate workmanship, it is on this account rather beyond the capabilities of young hands. A couple of woodcocks hanging by their legs to a rough nail would be an exquisite panel for the door of a cabinet. Of course, it ought to be carved from Nature, for even the best drawing cannot do justice to the extreme softness and lightness of the plumage. A robin lying dead on a moss-covered stone would be a very pretty model for a



paper-weight, and being small it could be carved in ebony. A snake curled round a branch forms a beautiful paper-knife handle, the scales of the reptile contrasting well with the smooth stick. If you can catch a slow-worm (a species of snake, but of a harmless kind), and watch it wriggling about, you will be able to copy its peculiar flat-sided, triangular form, and thus avoid the roundness and stiffness which is usually the fault in conventional snakes. For the stick round which it is coiled take a piece of blackthorn as your model, with plenty of knobs, being mindful, however, that they are not uncomfortably sharp for the hand. The side of a sliding book-stand is also a pleasant little piece of carving, and is the easiest and simplest thing you can do. No design looks better for this than a boss (to use an architectural term) of leaves, or fruit, or flowers, either perforated or with a stamped background: pricking it evenly with a small awl or gimlet answers the purpose of stamping, and has a better effect, the object of this stamping or pricking being to hide any unevenness of ground. For picture-frames the simplest and indeed the prettiest design is formed by four rustic sticks, crossed at each corner, round which is twined a grape or hop-vine, or any other suitable

foliage. As a thin board of any size is very apt to warp, it is better to cut your wood into four pieces or strips, the grain going the same way in each, and have them dovetailed together so as to form your frame, on which draw the design, either using black lead paper, or else paste the paper pattern itself upon the wood, which, though not a very workmanlike proceeding, is, however, very useful in insuring straightness and correctness of execution. We would advise your confining yourself entirely at first to these small undertakings, and not to attempt anything on a larger scale until you feel perfectly at home with your tools, and by practice have learned the innumerable little knacks and "dodges," to use a schoolboy's expression, which tend so greatly to success, and which can only be learned by experience; and this in carving, as in



BOSS FOR SLIDING BOOK-STAND.

other matters, must often be dearly bought, for there are many disappointments and vexations in store for a young beginner, from which even the best workmen are not altogether exempt, though foresight and skill may do much towards overcoming them. A few words of verbal instruction on these points from a professional carver would be of more value to you than a dozen pages on the subject written by Gibbons himself. It is possible, in these days of church restoration, that within reach of some of our readers cunning "work" may be in progress under the superintendence of Scott or any other of our well-known architects; should this be the case, we would urge them to lose no time in taking advantage of so golden an opportunity for improving themselves in their art. As you become more skilful, so in proportion will your ambition increase; and it is right that it should be so, for though paper-knives and book-stands are all very well to



RUSTIC PICTURE FRAME.

begin with, yet you would be very poor-spirited if you were to remain content with such things all your life. So we will suppose that having followed these few words of advice, more or less faithfully, for some months, you are now beginning to weary of the aforesaid paper-knives, and, feeling yourself capable of better things, are now turning your thoughts towards higher art, for which there is no greater field than the wide one which we will generalize under the head of Church Restoration, for in it may be found work suited to all capacities, from the simple poppyhead to the elaborate reredos. We designate the former as simple, for so it is, comparatively speaking, and yet from its very simplicity it requires much consideration and thought, as in this style of carving the design is usually of a bold, severe character, the effect mainly depending on a skilful management of light and shadow. In order to attain this a masterly carver will, before commencing his work, ascertain the position in which it will be placed when finished, and will arrange his work accordingly. Much time and labour is often wasted by this point being neglected, for in carving, as in painting, a good, or rather *the* right light is indispensable; and a judicious workman always bears this in mind, and will put his most delicate and finished work in the eye of the light, while for those parts in shadow broader and coarser strokes will tell with the greatest effect. By attending to this simple matter you will be enabled to turn out a piece of carving in a quarter the time and with half the labour which an ordinary carver, unmindful of this essential point, would expend on it.

This rule applies with more or less force to all carvings, with the exception of architectural or formal designs, in which no such license can be permitted, as every line must be by rule and measurement. For this reason it is, with the exception of figures, the most difficult style of carving which you could attempt, from the extreme exactness and precision required, rendering it almost impossible to retrieve the mischief caused by a false stroke, which in foliage would be of little consequence, but in these formal designs a slip of the chisel (of which even the best carver is occasionally guilty) is a serious disaster. Figure carving is at once the highest and most interesting branch of our art, being neither more nor less than sculpture on a small scale. Of this style the *basso relievo* is the easiest. In these days of photography you need never be at a loss for a subject: a clear photograph of some good picture is the best model you could have. If, as would probably be the case, you should wish to increase or decrease the picture to suit the size of your intended carving, we would recommend you to adopt a method which is in common use amongst copyists, which is, to cover the face of the photograph or picture with a network of horizontal and perpendicular lines, by means of a light pencil or of threads stretched from edge to edge; this done, take a sheet of paper, or a board, the size you wish your carving to be, and rule on it lines similar to those on the picture; you will thus have the same number of squares on your paper as there are on the picture, in each of which sketch in the figure or whatever may be the subject enclosed in the corresponding space on the photograph: by these simple means, even the most clumsy draughtsman is enabled to make a tolerably accurate outline. You could also have your subject enlarged by means of photography, but it would be a somewhat expensive process. Of carving from a cast it is almost useless to speak, as in England, and more especially for those who live in the country, it is very difficult to procure good ones, and unless they are really good it is better to have nothing at all to do with them, but trust rather to engravings and photographs for subjects, unless, indeed, your talent be of that high order which enables you to handle the clay yourself; and even in this case we would advise you, for some little time at least, to copy from undoubtedly good masters, in order to educate your eye and talent thoroughly before you launch out into fancies of your own. Single heads in three-quarter relief form capital studies, such, for instance, as Guido's "*Ecce Homo*," and many of Ary Scheffer; or if you prefer a stronger, more nervous style, you will find it in Albert Dürer's woodcuts of the "*Passion*;" there are also photographs published of the works of the celebrated Danish sculptor, Thorwaldsen, many of which are well suited for wood carving.

These are but few of the many subjects which we could enumerate, but as our object in making these remarks is chiefly to assist and encourage youthful carvers, who are still toiling up-hill, rather than those who have already reached the higher walks of their art, we consider that having led our readers up to this point, our task is ended; and we trust that in their upward progress they have acquired sufficient experience and knowledge to enable them henceforth to depend on themselves.



## MODELLING IN LEATHER.

This art must, in its nature, differ so completely from the arts of modelling in wax and paper that, although the same objects are often imitated, a knowledge of them would only assist us in modelling in leather by giving us dexterity in manipulation. The same rule, however, applies to this as to all attempts at modelling from Nature: always, if possible, to have the real flower or leaf, &c., &c., to work from, and to become thoroughly acquainted with its characteristics before we begin to copy it. Flowers, leaves, fruit, and even birds may be very beautifully modelled in leather; architectural mouldings and wood carvings may also be accurately represented. Picture-frames, brackets, boxes, screens, cabinets, and many articles of furniture, the foundation of which is wood, and which are capable of being ornamented by carving, may be adorned with leather.

The materials necessary for the work are skins of thick leather prepared for it, called *basil*, and of thinner leather called *skiver*; moulds for making grapes and convolvulus flowers; wooden pestles, and moulding tools; a knife, scissors, nippers, hammer, pins, wire, small brad-awls for piercing, a tool for veining the leaves, and glue, which is generally prepared in sheets to be melted as required. It must be soaked for several hours in cold water, and then gradually heated and kept hot while in use.

The leather is cut and veined on a thin board.

## A SPRAY OF IVY LEAVES.

This is perhaps the most easily modelled spray to begin with, and any patterns of leaves may be obtained by putting the real ones on paper and tracing round them, and copying the veinings. Place the paper pattern on the leather and cut it out in the whole spray; pare the edges with the knife on the under side of the leather, so as to make the leaves and stalks thinner at the edges; then dip the spray in cold water, or put it on the board and damp it thoroughly with a wet sponge. It must not be too wet, or it will be swollen by the water; but while dry, it will not receive the impression of the veiner, neither can it be moulded into shape. The veining is to be done by pressing the small veining tool on the front side of the leather, and drawing it down and across the leaf with sufficient force to give the markings of the real leaf; the middle vein is made by double lines. When all the leaves have been veined, they are to be modelled into shape and curled as in nature. The leather leaf should be held in the left hand, and the under part of it pressed with the thumb and second finger of the right hand, while the forefinger presses it on the top, so as to push the leather up between the veins and to curl the edges over. The middle stem and the leaf stalks must be laid on the board face downwards, and rolled with the palm of the hand till they are quite round. They will not require wire: when quite dry they will retain their roundness, and the leaves will keep their shape and the impressions of the veining tool. In order to make them firmer and stiffer,



IVY LEAVES.

\* The same moulded  
and filled up.

it may be as well to put a coating of glue over the under part of the leaves, and to glue up the stems into close round stalks. The berries of the Ivy are made by pushing small circles of the thin part of the leather into little round holes in the small mould (well wetting them first), and moulding them by turning the smallest pestle round and round in the hole. They are pulled out of the hole in shape, and left to dry; after which they are trimmed, and glued on to the circles made for them on the spray. The five outer berries are cut out on the branch, and must be moulded also. Holly berries, Currants, and small Grapes are made in the same way, in moulds of various sizes. The spray is now ready to be glued on to the wooden frame on which it is to be mounted, which, if not entirely concealed by the leaves, must be prepared by a covering of the thin skiver glued over it. The leaves and stalks must be glued on firmly over this, and it is best to secure them in their places by the pins, which are hammered a little way in, and can either be withdrawn when the work is quite firm, or the upper part of the pin may be broken off with the nippers, and the point left in the frame if it will be concealed by the leaves. The glue must be kept very hot while in use, and in a moderate degree of consistency; if it is too thick it cannot be laid on smoothly, and if it is too thin it is apt to stain the work. Especial care must be taken to avoid glue stains, when the work is left uncoloured and unvarnished; and this is generally the case in the present day. It is found that the leather left in its original condition becomes of a very nice artistical colour when long exposed to the air, and is better unstained by any preparation of paint or varnish.

Sprays of Holly leaves and berries are made exactly in the same way as the Ivy; but the leaves must be pinched at the edges into points, to imitate the original leaves.

The Acorns are best made by covering the real acorns with skiver; but if



these cannot be obtained, they must be cut out in halves like the pattern, moulded and stuffed with cotton wool, and the cup must be very much pricked, snipped, and indented, to give the rough appearance of the original. The half Acorn alone will generally be sufficient to glue on to a frame or bracket, &c., unless it is to be pendent, in which case of course the whole Acorn will be needed, and it would be best to cover one separately from the cup, and glue it into that. Nuts and Filberts are made in the same manner,



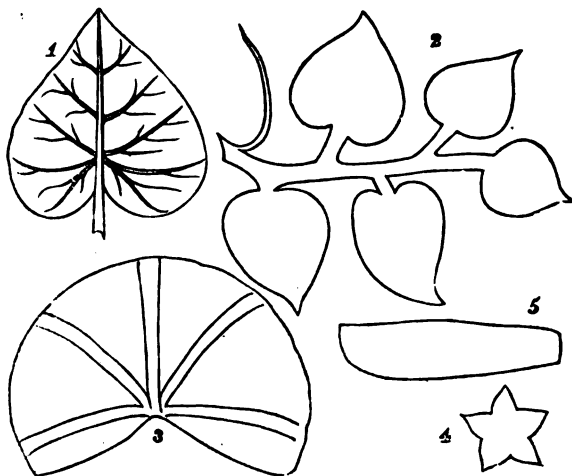
AND STALK.  
c, Method of doing the grapes.

and fastened into a thin leather involucre, cut out from the original and jagged in the same way. Pendent Grapes are made in a similar fashion; but for these, little wooden moulds of light wood are required: they are covered with skiver made very wet, and drawn closely round them and tied with cotton at the stalk end. As soon as they are quite dry, the cotton is taken off, and the leather cut away, so as to leave a smooth point ready to be attached to the stalk or be glued into the bunch. The Grapes that are not pendent are made in the moulds in the same way as the Ivy and Holly berries, and glued on to a piece of leather, the lower ones concealing the foundation, and the others being piled on one half over

another, so as to form a compact bunch of Grapes of various sizes. The branch, leaves, and tendrils of the Vine must be very carefully modelled, veined, and rolled. The broad strip of leather cut out for the stalk is to be very much veined, wrinkled, folded, and twisted, to represent nature. It is impossible to describe its manufacture accurately, and it can hardly be done without a pattern, or the real branch to model from. The tendrils should have a vein drawn down the under side, so as to make them curl over more easily, and then they are rolled and glued like the flower leaf stalks.

### CONVOLVULUS FLOWERS AND LEAVES.

The flowers of the Convolvulus are moulded in the moulds sold for the purpose, of various sizes, with pestles fitting into them. The leather is cut



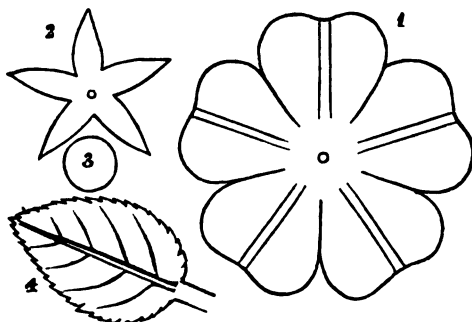
1, Leaf of *C. major*. 2, Leaves for small Convolvulus. 3, Flower of *C. major*.  
4, Calyx of *C. major*. 5, Bud of *C. major*.

out of the shape No. 3, wetted, and pressed into the mould with the pestle in the right hand, while the left hand arranges the flower, so as to have it as smooth and unwrinkled as possible. The leather is cut close round the edge of the mould and left to dry; afterwards it has to be glued up and attached to the stalk. It is best to cut a separate spray of stalks for the flowers, and buds, and tendrils, snipping the points of the flower stems into stamens, cut very thin and curled while wet, and twisting up the buds into points. The stems and tendrils are of course to be rounded while wet, and the latter should be twisted round a pen-stick or pencil, to give them the

required coils. When dry, the stamens are pulled through the flowers, the calyx modelled into shape and pushed up the stalk, and all are firmly glued together; then the flower spray is twined round the spray of leaves, and the two sprays are mounted together.

### LARGE GARDEN ROSE.

The Rose petals are to be cut out in circles, made up of five petals each. Three of No. 1 are required, and two of a size smaller, and one of the smallest size, which can easily be graduated from pattern No. 1.



1, Rose petals. 2, Calyx. 3, Seed-pod. 4, Leaf.

They are veined in the centre of each petal, and modelled in the hand with a moulding tool, so as to round them like Rose petals; the smallest circle is closed up and the petals are glued together, one edge of the petal being placed over another petal, and so on. The circles must be modelled so that all but two of No. 1 are hollowed in the inner side; these are moulded so as to turn back, and are not so much hollowed as the others. When the Rose is formed, the stalk, with a little knob for the head, must be pushed through the small circle, and securely fastened to it (a large Rose will require a wire within the leather stem), and the other circles must be pushed up in their turn, observing that every petal is placed behind and between the two front ones, and glued on to the inner circles. Finish the flower by attaching the calyx and seed-pod to it. It is well to cut out the leaves in the spray. No. 4 is a middle-sized Rose leaf. Buds are made by a circle of five or three small petals glued together and placed within a calyx and seed-pod; thorns, by cutting out little triangular pieces of leather, doubling and pinching them into shape, and gluing them on to the flower stalk.

The small double Roses are done exactly in the same manner, with smaller petals, leaves, and stems. All the pieces composing the spray should be carefully pared at the edges, so that the leather may be much thinner there. The single Roses have only one circle of five petals, which should be veined

from the real petal and hollowed into shape, and a bunch of stamens in the centre of the flower. These are made in the same manner as the stamens in wax Roses—cut out in a strip of skiver, and rolled and curled by the fingers, and when dry rolled round the top of the stalk and glued neatly to it. The calyx and seed-pod are, of course, the same as for the double Roses, and the buds are made in same way.

### THE WHITE GARDEN LILY.

The white Garden Lily is made by cutting out the three inner petals together like No. 1, and the three outer petals, which really form the calyx, as No. 2, veining them very regularly according to the patterns, and modelling



LARGE GARDEN LILY FLOWERS, LEAF, BUD, AND STAMENS.

1, Inner petals (corolla). 2, Outer petals (calyx). 3, Bud, in two threes. 4, Leaf.  
5, Six stamens and pistil. 6, Anther. 7, Stamen, finished.

them so as to turn back as the real Lily does. The pistil and stamens are cut out in one strip of leather and rolled into shape. The pistil-head or stigma is made by folding the round piece into the right form; the stamens must have anthers (No. 6) glued on them, and doubled over them when

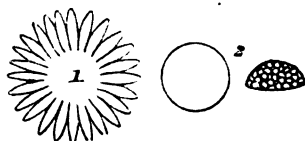
they are dry; then the stalk is passed through the inner petals first, and the three outer petals are glued behind and between these. The bud is formed by two smaller pieces of three petals each (No. 3) glued closely up, so as to form the long pointed bud of the flower.

Several leaves cut out and veined like No. 4, of various sizes, and modelled with the hand, so as to resemble the real leaf of the Lily, should be attached to the stalk or glued separately on to the frame. The stalk will probably require a wire to strengthen it.

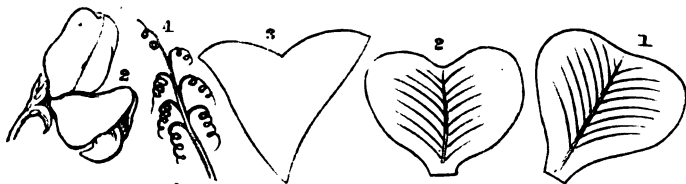
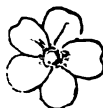
The *Lilies of the Valley* are made by moulding little round pieces of leather in hollow moulds, or by straining them over solid moulds of different sizes while wet. When dry they must be cut into shape, and mounted on a stalk, with nine, eleven, or thirteen tiny stalks branching out, each of which must be attached to a Lily bell (it should be put through and a small pin put in, broken off at each end, to keep the stalk from slipping out of the bell). One flower stalk should be fastened between two leaves, which must be veined after nature, in long parallel lines, and moulded into shape.

### THE DAISY.

The florets of the Daisy are cut out in one piece like No. 1, pared at the points, and veined on the under side so as to make a rib in the centre of each floret. The centre is made by a round piece of leather a little hollowed, and pricked so as to represent the yellow compact centre of the flower.



The *Forget-me-not* is cut out in one piece, and a little flower stem attached to it, a little bent at the point, so as to be firmly fastened into the blossom.



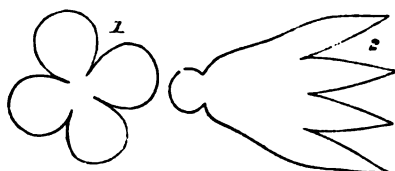
### THE SWEET PEA.

This is cut out in three pieces. The inner one, No. 3, must be closed up for the keel; No. 2 must be hollowed so as to enfold it, and No. 1 bent back

as in nature. The stalk may be cut out with two or three other stalks branching from it, with leaves of different sizes in pairs, and some of these stalks should be left without flowers, and cut into tiny twisted tendrils, Fig. 4.

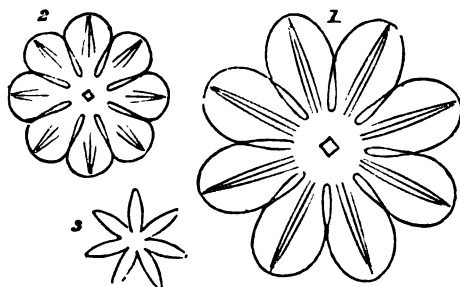
### THE FUCHSIA.

The calyx and corolla are cut out each in one piece, and modelled into shape with a pestle in the hand. The pistil and stamens (cut shorter than the pistil) should be cut out on the flower stalk, and rolled and bent at the points, to form the stigma and anthers. The spray of stalks and leaves may be cut in one piece of leather, as directed for other sprays of leaves.



1, Corolla. 2, Calyx.

Poppies and Anemones should be cut out in circles in the same way as the rose petals are made. The stamens are cut out of strips of leather like those of the single roses, and the large seed-pod of the Poppy should be formed by covering a round piece of wood, or a grape mould, with leather, and gluing very thin strings of leather (rolled) across it, so as to give the ridges of the original. The Anemone seed-pod should be made less solid, and pricked and snipped, to represent it as accurately as possible.



### THE DAHLIA.

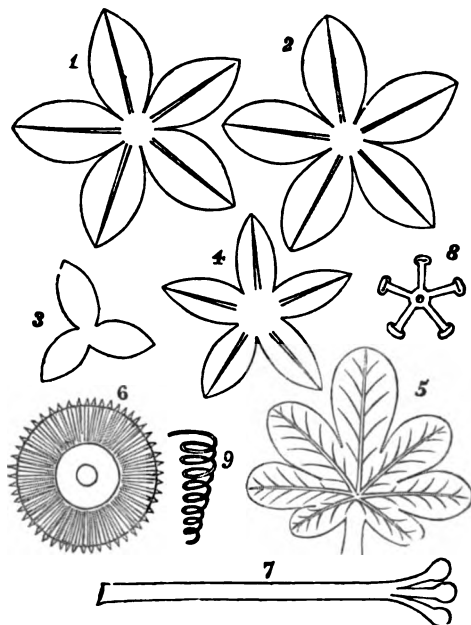
The Dahlia is formed of a number of circles of petals, of which I give a pattern of the largest and smallest. There should be at least eight or nine of these, and they must all be veined and indented in the centre of each



petal, hollowed, and the lower part of each petal must be rolled up, to give the appearance of the natural flower. The middle of the Dahlia is formed of three stars (No. 3), which are rolled up to make the little florets clustering round a round ball, which they must cover. All the circles must be firmly glued to each other, and to the stalk passing through them.

### THE PASSION FLOWER.

The Passion Flower is of somewhat complicated manufacture. The corolla is cut out in one piece of five petals (No. 1), and the calyx in another



1, Corolla. 2, Calyx. 3, Involucre. 4, Bud. 5, Leaf, largest size. 6, Radiance.  
7, Pistil. 8, Stamens. 9, Tendril.

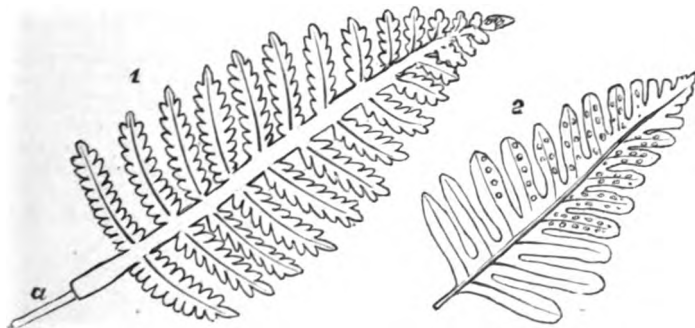
similar piece, a little more pointed (No. 2). Both must be veined, moulded, and pinched into shape. The stalk is cut into three divisions at the top, which are rolled and curled back to form the stigma of the pistil. The stamens are cut out in one piece (No. 8), and rolled and folded back at the points for the anthers. The radiance should be cut out of the skiver in a round (No. 6), and fringed nearly to the circle drawn on the pattern; the

inner part of the round must also be cut out. A little strip of leather must be rolled round the stalk below the stigma, and the stamens must be pushed up to this, and glued under it; the stalk is then passed through the radiance (which should be glued to it at a little distance below the stamens), and the corolla, calyx, and involucre, each of which must be firmly attached to the stalk, and the piece above it, and arranged according to nature.

The bud is formed by gluing the points of the corolla (No. 4) together, and attaching the involucre to it.

The leaves are cut out in sprays with a number of tendrils, which must be rolled and twisted into coils. The spray should consist of leaves of different sizes. No. 5 is one of the largest.

### FERNS.



a (1), Wire stalk. 2, Polypody.

Ferns of various species may be made in thin leather, cutting them out as above in one frond, and putting a rolled stalk, with a wire in it, behind it, to keep it in shape. The seeds on the polypody are represented by punching the frond at the back, so as to raise the surface in front.

### EARS OF CORN.



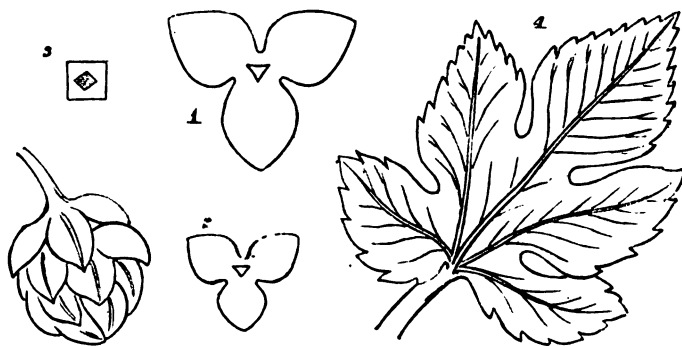
(Four of these form one ear of wheat.)

Ears of Wheat are done either in four pieces, like the pattern, with a vein in the centre of each, and the grains rounded and pinched into shape, gluing the four pieces together with a stick in the centre, or by attaching each

grain, separately cut out and moulded, to a stalk of leather. Barley might be done in like manner, but with beards attached to the grains, formed of the thinnest strips of leather, rolled.

The pods of Peas are very effective modelled in leather: they should be cut out in halves, with hollows moulded in them for the peas, and represented bursting open, so as to show these within them. The peas themselves should be made like berries, in moulds, and glued into one of the halves of the pod. A closed pod might be added, for the sake of variety.

### HOPS.

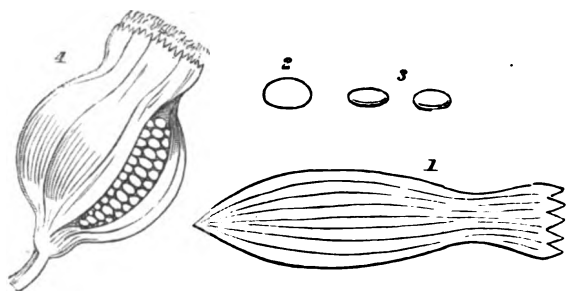


1, Large hop. 2, Small hop. 3, Square of leather. 4, Vine leaf.

Hops are remarkably pretty made in a cluster of seven or eight cones, with a couple of leaves, very much veined and crinkled, tied together, to form a pendant to a frame or bracket. The hops are made by stringing together five or six triangular pieces like No. 1 for the larger hops, and No. 2 for the smaller ones, with little squares of leather between each, cut out like No. 3. They are all to be of the same size, the three divisions at the top of the cone being glued together over the stalk, and the others pushed up and glued between them; the squares between each piece keep them in shape, and must also be glued on firmly.

### FRUITS.

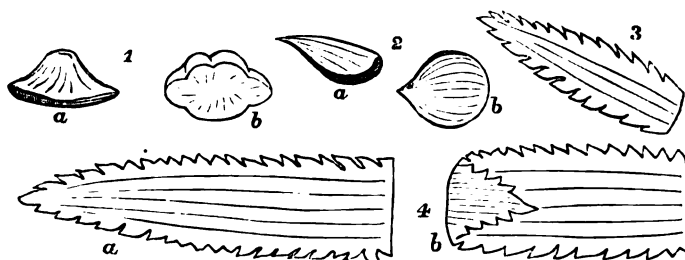
Most fruits can be very effectively represented in leather. Many of the larger ones, such as the Melon, Apple, Pear, and Peach, are made in halves, in moulds cast for the purpose in gutta percha or plaster of Paris, and moulded while wet into shape, and stuffed with leather, chips, or cotton wadding. The Pomegranate and the Pine-Apple are differently made.



THE POMEGRANATE.

2, Seeds open. 3, Seeds when moulded. 4, Fruit, finished.

This fruit is made in eight compartments (Fig. 1) joined together round a hard ball, formed of cotton and leather stuffing, large enough to leave space for an opening on one side (No. 4) to exhibit the seeds. These are moulded in an oval mould and glued on in parallel rows (about three rows of a dozen seeds each, will be sufficient). A serrated strip of leather must be rolled round and round, and glued at the top of the ball, to form the crown of the fruit, and then the compartments must be laid on, side by side, till the whole of the ball is covered, excepting the opening showing the seeds.



THE PINE-APPLE.

1, Scale: *a*, when moulded; *b*, open. 2, Spine: *a*, folded; *b*, open. 3, Small leaf.  
4, Leaf: *a*, as cut out; *b*, moulded.

The foundation of the Pine-Apple is made in like manner of a round ball of leather stuffed, but it must be entirely covered with spines (No. 2), and scales (No. 1), cut out, veined, pinched, and moulded into the proper shape, glued upon it. The crown is made by a tuft of smaller leaves of the same kind as Fig. 3, veined in long lines, and deeply serrated at the edges. The leaves which surround the cone are turned back at the points, and show their under side (Fig. 4).

This and the other large fruits are of course only suitable for the adornment of large pieces of furniture, such as the panels of a book-case, cabinet, or sideboard. Grapes have been already described; they answer admirably both as a solid ornament and as a pendent.

Raspberries, Mulberries, and Blackberries are made by covering little balls of leather with stalks affixed to them, with seeds made in a very small hollow mould, glued all together upon them.

The seeds of Strawberries, which are not so prominent, can be imitated by indenting the leather foundation, and raising and depressing its surface.

For very large subjects, for the top of a book-case for instance, the Acanthus leaves and pods are exceedingly effective; but they should not be mixed with flowers, but form an ornament alone. Only a small piece of the leaf can be given. This will show its character.



THE ACANTHUS.

a (1), Marks made by the gouge. 2, Piece for pod. 3, Open pod.

The lower part of the leaf is represented after it has been veined very deeply and accurately (a broader veining tool may be helpful); the centre part, where the three leaves seem to join, should be pinched up, and held firmly doubled with the left hand on the board, while the fold is indented with a gouge, as in Fig. 1.

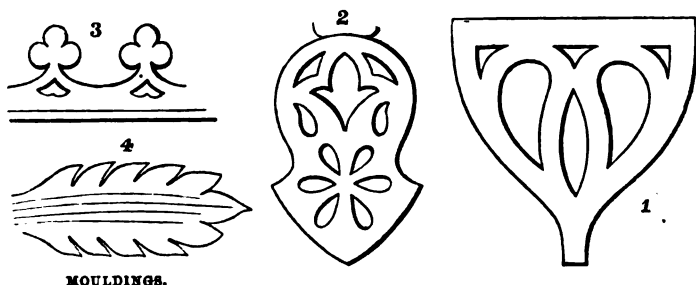
The Acanthus pod is made of nine pieces of leather like Fig. 2, curved and laid on a foundation ball, side by side, like the compartments of the pomegranate. The pod should be represented bursting open and exhibiting its seeds, just in the same way, the seeds of course being smaller, to correspond with the smaller pod (Fig. 3).

Many architectural mouldings and Gothic patterns can be imitated in leather; but it is impossible to give directions for these in writing, and careful observation of carved work would enable any one acquainted with the

various methods of modelling in leather to make them. A pointed Gothic moulding, very much used for frames under the flowers and leaves, which are laid across it in sprays, is made by double folds of leather, cut in long strips, and pinched into points at intervals. This is done when it is very wet, and it must be left till dry, pinned out on a board in the shape it is to assume on the frame. Scrolls and arabesque ornaments are often formed of tight rolls of leather, made in the same way as leaf stalks and tendrils, and twisted into shape while wet.

Baskets are prettily made by imitating cane-work with these rolls.

### FRETWORK LEATHER.



The fretwork carving so much in vogue in the present day can be exactly imitated in leather. Cut out two pieces of the required shape, as for instance Fig. 1, and glue them together, so as to present two smooth surfaces. When quite dry, the piece thus made must be laid on a board, and the ornament formed, by cutting out the pieces which would be sawn away in wood carving, by gouges and chisels of various sizes. These must be held upright in the hand, and the pattern stamped out according to the thin cardboard pattern, which should be laid upon the leather. The gouges used should exactly fit the curves of the pattern, so as to cut it clean. Brackets are made by gluing a number of pieces prepared thus together, over a foundation of wood, and ornamenting them with squares, rounds, and ovals, and mouldings cut out in the same way, and arranged to form an architectural design. Of late much leather work has been done by modelling the thin leather called skiver, which was formerly used chiefly for the carving of frames, &c., into flowers and leaves, and these are very pretty for very small articles—little *carte de visite* frames, baskets, &c., but would not be suitable for the larger work, where the flowers and leaves are to be modelled of the size of life.

A word or two should, perhaps, be added about the arrangement of the work, and the tinting, varnishing, and gilding. If very dark wood is to be imitated, it is necessary to colour the leather. One or two coats of size must first be laid on and allowed to dry, and then the colouring matter, oil

paint in tubes, or "tints" sold for the purpose, is carefully put on with a stiff-pointed brush, and the work is finished by a coat of some quickly drying varnish. Rosewood is imitated by a mixture of crimson lake and Vandyke brown, and mahogany by burnt sienna and burnt umber.

Whenever it is possible, however, to leave the leather in its natural condition, it is far better not to stain it at all. Exposure to the air will give it a nice artistic tint in the course of time, which is far preferable to any colour given by paints; moreover, the work is generally more carefully finished when no deformities can be hidden by the paint-brush. Gilding is a long and troublesome process, done by laying on gold leaf, as wood and plaster are gilded, with gold-size, and much of the beauty of the work is lost by covering the leather thus.

It is difficult to give directions for the arrangement of leather work, because an artistic eye and good natural taste are necessary, and the subject to be adorned should be carefully considered, and the design should be appropriate and consistent throughout.

For frames intended for pictures of sacred subjects, flowers which have acquired ecclesiastical emblematical meanings should be grouped together. One or two examples will suffice. For a picture of the Crucifixion, the Passion Flower and the Vine would make an appropriate frame; the Lily for pictures representing the Virgin; the Vine and the ears of corn for representations of the Lord's Supper, &c. For secular subjects, mirrors, picture-frames, and baskets, &c., flowers of a suitable size should be grouped together, with due attention to the size as well as the nature of the article to be ornamented. The Rose, Lily, and Convolvulus do well together; and field flowers, such as the Daisy, Forget-me-not, Violet, Lily of the Valley, and wild Rose, are exceedingly pretty together. One more hint may be usefully given to a beginner in the art—not to crowd her work; it is sometimes rendered heavy and unsightly by the quantity of flowers or fruit heaped upon it. A bunch of Grapes, with Vine leaves and tendrils, will make a very pretty basket, or two flowers, a bud, and some leaves of the garden Lily, &c.

The foundation wood is generally deal or beech, which is not so heavy or so hard to work upon as oak.

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## WAX FLOWER MODELLING.

This art is extremely pretty, and may be made very helpful to young botanists, by leading them to a thorough acquaintance with every part of the flower they are modelling. I advise them always, if possible, to get two specimens of any they attempt to copy: one, to pull to pieces, and model the several parts from the original; and the other, that they may imitate it as a whole, and build it up with its petals round it, exactly as in the natural flower. This is the only way to copy it accurately, and it is useless to attempt to make wax flowers, unless they are modelled so exactly after the originals as to be mistaken for them when placed side by side. My young

readers may smile, and suppose that this would be impossible; but I can assure them that some flowers may be copied so exactly as to deceive any one who examined them only by the eye, and did not expose the imitation flowers to the senses of smell and touch. Almost all white flowers can be modelled to perfection; but some of the colours of Nature baffle Art to represent exactly, and flowers which have these are best not attempted: the clove carnation and the scarlet geranium I may mention as examples; I have never found any colour, either in powder or in liquid paint, that could give the right hue, or did not look dead and bloomless. Scarlet geraniums are often modelled, but they cannot stand the test of being laid by the side of the real flower. Most of the roses can be copied, but only the paler ones are perfect; the deep crimson kinds, and some with *blue-pink* shades, look dead by the side of the real flowers. All the white, yellow, buff, and China roses can be modelled admirably. Many gardeners have been completely deceived by the wax imitations, and have pronounced dogmatical opinions as to the names and species of the roses, in a very amusing manner. I remember handing one of my making to a gardener, with the request that he would tell me if it was a *Devoniensis*, and after examining it for a little while he said, "No, ma'am, that is not a *Devoniensis*—it is not *waxy enough*; it is—" and he gave it another name which has escaped my memory, and was half inclined to be affronted by the laughter which greeted his observation. The most complete triumph, however, that I ever had was given me by a purple anemone, which was copied exactly enough to deceive my sister, who had seen me making it, and yet placed it most carefully in water with the real flowers, causing me to search for it in vain amongst the wax flowers on the table, and to suppose, at last, that my handiwork must have been destroyed, and the fragments thrown away with the flower petals which I had been copying. When a plant is of such a size and nature as to allow of its being copied altogether—stalks, leaves, and blossoms—of course the imitation is more perfect. I have frequently modelled fuchsias, small roses, hyacinths, primroses, and violets thus, and placed them in flower-pots; and my visitors have sometimes allowed their imaginations to deceive them so entirely as to exclaim that the room was redolent of their fragrance!

The materials required for wax flower modelling are sheets of green wax, thick, medium, and thin; of yellow, orange, and lemon; and green wax of all shades and gradations of colour, for the stalks, leaves, bracts, &c., &c.; very thin green and white wire for the leaf stalks, thick green wire for the flower stalks, and a little white wire for large white petals; bloom and frost for the flower petals; down for the primrose stalks, white and green; and powders of various colours—carmine, rose pink, rose madder, pink, chrome Nos. 1, 2, 3, violet of two or three shades, ultramarine and cobalt, black, brown, and white.

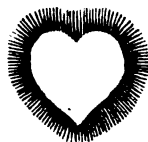
The tools required are two or three moulding tools of box-wood, curling-pins of various sizes, a fine-pointed pair of scissors, a palette-knife, and a few small poonah and sable brushes.

The wax is sold in the gross (a dozen packets of twelve sheets each) for 6s.; the powders are 1s. a bottle. Most artists' colourmen supply all the



materials for wax modelling. Messrs. Barnard, 339 Oxford Street, London, have all that is required for this and the kindred arts of paper and leather flower making. Leaves, buds, and calyxes may, I believe, be purchased ready made; but I have never bought any; and I think one of the great pleasures of wax flower modelling is that every part of the flower may be made by oneself, which is not the case with paper flower making.

The first process is to take the patterns of the flower you intend to copy, in its various parts, beginning with the petals of the corolla. Perhaps the white camellia is as easy as any flower to model, and more tractable under fingers unaccustomed to the delicate handling required by fragile blossoms than many more simple flowers. One hint may be given about the camellia, the rose, and other double flowers with a quantity of petals: That the object must be to give its effect as a whole; and that, while any peculiarities about the flower should be imitated exactly, any natural blemish, such as a stain, or crumpled or withered leaf, should be repeated. Allowance must be made for the difference of material: no wax can be so thin as the petals of some flowers are, and, moreover, in the natural flower every part fits into its place without cement, while in the waxen model a little piece must be allowed for affixing each petal to its position. Every petal of a flower composed of a great number of petals, therefore, could hardly be modelled, and many are hidden from sight by the outer ones; but the position of the petals, whether placed exactly behind or between the inner ones, the number in each circle or row, &c., must be carefully noted and copied. Lay the petals you wish to copy on paper, and with a small poonah brush, slightly dipped in paint, touch the edges all round, so as to leave the size of the petal depicted on the paper, thus:



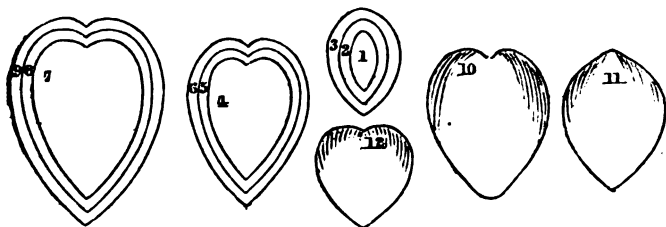
It is the most accurate mode of copying it, giving all its irregularities of form exactly. In cutting the wax out from this paper pattern, a little piece must be allowed at the point for fixing the petal on to the stalk. Care must be taken to have the lines of the waxen sheet running upwards, and not across the petal: therefore the upper part of each paper petal must be placed on the narrow part of the sheet, and the wax cut round it with a sharp pair of scissors. If the sheet is brittle, it should be warmed a little with the hand before it is cut, and the scissors may be slightly wetted, so that they may not drag any of the wax away and make an uneven edge. I give patterns for one white camellia, to give some idea of the number of petals required and their shape; but I must repeat that there are scarcely two flowers to be found exactly alike, and that when practicable they should be modelled from life.



#### WHITE CAMELLIA.

Cut out five petals of Fig. 9, five of Fig. 8, twenty of Fig. 7, three each of Figs. 6, 5, 4, 3, 2, and 1, and three of Fig. 10 (the outer petals), all in the medium white wax; three of Fig. 11 in lemon wax, and three of Fig. 12 in light green wax, for the calyx.

Soften the wax by holding it in the palm of the hand for a few minutes, and then rub the white bloom thoroughly on both sides of the petals, leaving only the point untouched where it is to be affixed to the stalk (the bloom destroys its adhesiveness). The first six sets of three petals are to be slightly tinged with the palest yellow powder, about a third of their height from the points: this may be either rubbed on over the bloom with the finger, or put on with a sable brush, dry; it must be shaded off at the upper



part, the deepest colour being laid on at the lowest part of the petal, in the centre, and graduated so as to fade into the white part. This is to be the rule in colouring most flower petals, to shade the deepest colour gradually into paler tints towards the edges, because in the real flower this effect is given by the shade cast by each petal on the one lying outside it. The three outer petals, Fig. 10, will require a dash of green powder up the centre of the petal, and a tinge of pink on the upper edges; and the petals of the calyx will need a little brown marking to give the discoloration generally to be found on them.

Mould the twelve smallest petals with the smallest curling-pin, first passing the knob round the edges of the petal, so as to fine them off, and then rolling it round the centre in the palm of the hand, to hollow it into the shape of a spoon: lay the pin all along the centre of the petal, so as to crease it. This should be its shape when moulded: Figs. 5 and 6 are not to be quite so much curved, and 7, 8, and 9 are to be turned back with only a slight depression in the centre, which may be given by the pressure of the thumb: all are to have a crease in the centre. The three outer petals and the calyx sepals are to be hollowed a little, in the same way as the smaller petals of the flower.



Cut a piece of the thickest wire for the stalk of the camellia; cover it with a strip of white wax for about  $\frac{1}{4}$  inch, and bend it back; then roll more wax round this doubled wire, softening it by holding it at a little distance from the fire, till a solid bud, like a rose-bud, is formed. This is to be covered by the first three petals, and the other small ones are to stand up round them, each petal being placed behind, and between the two inner ones. A little pressure will cause the points of the petals to adhere to the foundation bud and to each other; but to secure them more firmly, narrow strips of wax must be laid on round each row of petals, about a  $\frac{1}{4}$  inch wide, and moulded into them with one of the wooden moulding tools.

The rows of five petals are to be affixed in the same manner, taking care that one is always placed behind, and between the two inner ones, and also that it is placed sufficiently high to be visible a little above them, so that the flower may increase in width regularly. The three outer petals will not of course be visible in front of the flower, but it must be nicely finished at the back, with these and the sepals of the calyx put on in the same manner with strips of green wax. The wire stalk must be covered also with strips of pale green wax, cut so as just to enclose the wire, and covered with other strips, moulded smoothly with the moulding tool. The stalk should be slightly bent, so as to place the blossom in a natural position, and two leaves bound on, at proper distances from it, on opposite sides of the stalk.

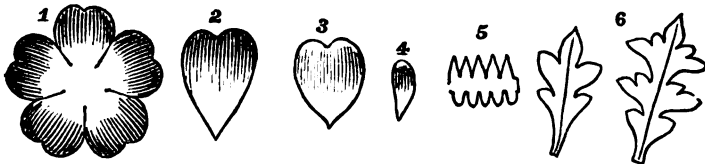
There are two or three methods of making leaves, but for the generality of flowers the following is the best: Take two sheets of green wax, to match the upper and under sides of the leaf in colour; place a stalk of middle-sized or fine wire, covered with the narrowest strip possible of wax, between them, long enough to be firmly attached to the flower stalk. The camellia, being a thick-leaved flower, will require middle-sized wire; and if the wax be very thin, a third sheet of wax may be laid underneath the others. The real leaf which is to be copied must be laid upon these, and the wax must be cut out exactly of the right size, with the wire of course in the centre of the leaf. Press the wax leaf against the real one firmly, and hold them at a little distance from the fire, so as to soften the wax sufficiently to receive the perfect impression of the real leaf, laid upon it, on its upper side. When this is obtained exactly, and the wax leaf is imbedded into the other, they should be dipped into cold water, and the real leaf may then be easily removed from the wax impression, the edges of which are to be cut into the right notches, and rolled into fineness with the knob of the smallest curling-pin. The wire leaf stalk must now be covered with a narrow strip of wax, and fastened to the flower stalk in its proper position, the front or upper part of the leaf being always placed against the side of this, and bent into the right shape afterwards. The leaves may require a little more binding, to secure them to the stalk, and this may need other strips of wax to make it thick enough. Then it must be brushed over with a little liquid brown paint, made by rubbing down a little of the brown powder, and mixing it with very thin gum-water, with the palette-knife, to represent the brown wood of the stalk; and the flower is completed, unless a bud is needed; in which case, three or six of the smaller petals must be cut out, in lemon or pale green wax, according to the size and colour of the bud desired to be copied; bloomed and tinted in the same manner as the flower petals, moulded, and affixed to a small bud made on a stalk of middle-sized wire, like the foundation of the flower, and pressed closely round it, so as to form a solid bud. This must be fastened to the flower stalk in the same manner as the leaves, and will probably have to be put on first, as the buds are generally close to the blossoms of the camellia.

Variegated and Red Camellias are done in the same way; the former having stripes of pink powder and carmine upon the white petals, rubbed on, or, if

slight, laid on with a small sable brush; and the latter coloured throughout with madder, pink, and carmine, and shaded according to the colours of each petal. Bloom will not be required for this camellia.

### NEMOPHILA INSIGNIS.

My next example shall be of a flower of a very different character, the Blue Nemophila (*N. insignis*). The corolla may be cut out in one piece, or in five separate petals, which are afterwards joined together; this, like the primrose, being a monopetalous flower. The pattern No. 1 would do for a middle-sized blossom if cut in one piece. I rather prefer, however, making the corolla in five petals, because they ought to lap over each other a little, and if cut in one piece, the lines on the wax go across some of them. In either case, the flower must be bloomed and coloured on the inside only. A little ultramarine powder is to be rubbed or brushed on the upper part of the petals, leaving the lower part white. Their points must be untouched



3, Half-blown petal. 4, Bud. 5, Calyx. 6, Leaves.

by the bloom, that they may be joined together. They are then to be moulded in the hand, and the edges curled back with the curling-pin if the flower be full-blown; otherwise it should be slightly hollowed and curled inwards. Half-blown flowers are very pretty: the petals must be smaller, of the size of No. 3, and the bud petals smaller still (No. 4).

After the petals are curled, put them together by laying one nearly half over the other, then rolling the curling-pin over them, so as to fasten the points together, and make the round by attaching the fifth petal to the first. This is very easily done, but it is not easy to describe. When the corolla is cut in one piece, it must be hollowed and curled in the same way, but it will only require a little hole in the centre, through which the stalk to which the pistil and stamens of the flower are attached, must be passed. These are made thus: with very fine wire, the stalks of the nemophila being exceedingly small, put a very narrow strip of wax only just wide enough to enclose the wire at the top of it, and with the point of the pin mould it to the shape of the head of the pistil; round this must be put five little stamens cut out of a strip of medium white wax, over which has been bound an edging of lemon-coloured wax, like the binding of the narrowest halfpenny ribbon over silk.



The scissors must be wetted, that the wax may not adhere to them, and then the strip must be cut a little way down, to separate the stamens, and

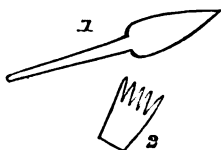
the five cut off together, and placed round the pistil of the nemophila, the tops being coloured with a little black paint. When the stalk is passed through the corolla, a little moulding with the fingers and the wooden moulding tool will make it secure, and then the calyx, which is cut out in one piece, and curled like that of the natural flower, must be put round it, and the stalk covered with the narrowest strip of pale green wax, or, better still, rubbed with a knob of it, so as to make it waxy without thickening the stalk. The leaves have such very slight impressions upon them that they hardly require being modelled from the real leaves; they are cut out in various sizes, of the shape of Fig. 6, in pale green wax, lined with white, and a thin wire stalk passed between the sheets: they can be moulded with the curling-pin into the shape of the real leaves, and two must be put on each flower or bud stalk, exactly opposite each other. The buds are coloured on the outside of the petals, and folded over a tiny bud of white wax put on the top of a thin wire stalk; they must have a small calyx like Fig. 5. The leaves should have a little bloom rubbed over them, to give the white dusty appearance of the leaves of the nemophila.

The Striped Nemophila (*N. maculata*) is made in the same way, but the blossom is larger than that of the blue nemophila, and as its delicate violet veins require to be painted with liquid paint, no bloom must be put on the flower, but a little white powder should be brushed over the part to be painted, in order to remove the oily surface of the wax, which repels the water colour. The round patch of violet at the top of the petals can be put on with violet powder; the veins must be painted with the finest sable brush as delicately and accurately as possible, with a very slight tinge of colour. It is best to mould the petals (or the corolla, if cut in one piece) before they are coloured and painted, so that they may not get at all rubbed after this has been done. They are mounted in the same way as the blue nemophila.

### WHITE JESSAMINE.

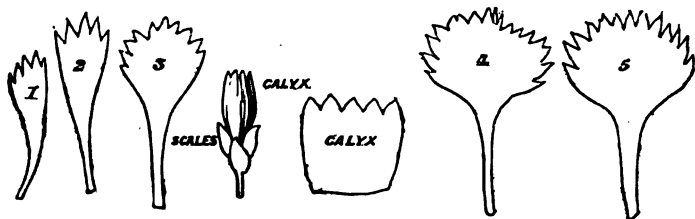
The White Jessamine is very easy of execution, but its blossoms are so small that they require very delicate handling. The five petals may be bloomed and tinted at once on both sides by mixing a very slight portion of the lightest yellow powder with the bloom, with the palette-knife. Then they must be moulded with the curling-pin, and placed round the pistil (the stamens are not visible), just in the same way as the five petals of the nemophila are put together. The back of the flower must be finished nicely, and a strip of white wax rolled round the upper part to make a smooth tube, which is to be painted pink with a liquid paint and a poonah brush. The calyx is cut out in one piece (Fig. 2), and tinted at the top of the sepals with brown paint.

The leaves are in threes and fives on a stalk. They must be modelled from the real leaves, in the manner described for the camellia leaves, putting the finest wire between the sheets of wax for the stalk, and of course putting



the leaves composing one sprig together, before the stalk is attached to the flower stalk. The edges of the leaves and the stalk should be tinged with brown paint, put on with the poonah brush, or a slight tinge of carmine over the green will give the same effect.

### WHITE PINK.



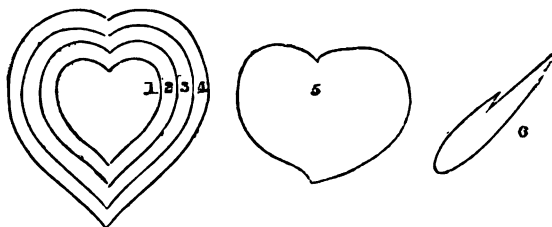
The White Pink is very easily and accurately modelled in wax. The petals are bloomed on both sides, and slightly tinged with green in the centre of each petal. There are five of each (Figs. 1, 2, 3, 4, 5), which are put round a stalk, from the top of which spring two long white stamens curling back as in this figure :

They lie exactly behind each other, five petals in each row, and must be securely bound on to the stalk with strips of wax, some being bent and twisted forward, and some curling back. They are often irregularly shaped, and these irregularities are best copied from the original flower, as they add much to the natural appearance of the wax model. A little frost may be dusted over the flower, when finished.

The calyx of green wax is lined with white, or with a very light shade of green, and the lining allowed to appear just above the points. Four small scales are put on in pairs, at the bottom of the calyx, and the whole is spotted with brown paint. Buds are formed by closing the calyx over a foundation bud of solid wax, and the leaves (if any are required) are cut out of a long strip of blue-green wax doubled and creased; they need no wire, but should be rubbed with bloom, and a little frost should be sprinkled on them, to give the powdery appearance of the real leaves.

The Piccotees and several of the Carnations can be modelled well in wax: the former must be sprinkled with white powder instead of bloom, and painted with liquid paint after nature; and the Striped Carnations should be made in the same way—in white or yellow or orange-coloured wax, according to the ground colour of the petals. The Clove Carnation is, I think, not to be copied effectively; but if attempted, the petals must be brushed over with crimson powder, painted with a mixture of carmine and ultramarine, and with a little sheer carmine afterwards; but they will always lack the bloom of the real flower, and look dead when placed by its side.

All mixed powders, it may be as well to say here, must be well rubbed together with the palette-knife, so that they may be thoroughly incorporated before they are put on the petals.



### THE COMMON PINK CHINA OR MONTHLY ROSE.

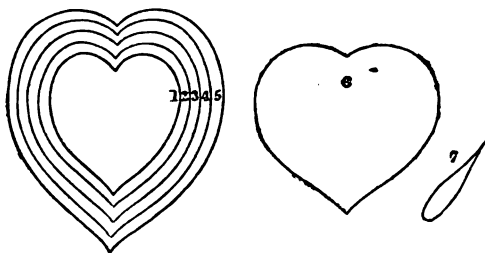
The common Pink China Rose is one of the easiest roses to model. Five petals of Nos. 1, 2, 3, 4, and three of No. 5 will be required. They are to be cut out of the medium white wax, and bloomed on both sides, leaving, of course, the points untouched. They are then to be coloured by rubbing rose madder into them, beginning in the centre and shading the colour gradually to the edges, so that the deepest colour is to be in the middle of the petals. In most roses, the inner petals are altogether deeper in colour than the outer ones; but this rose is an exception, and the outer petals have more colour than the others: they may perhaps require a touch of rose lake or crimson over the first colour; and the three outer petals will need various dashes of a deeper tint, on the upper edges, and across them on the outer side, especially if the rose is beginning to wane.

Roses require extreme attention in moulding. Almost all rose petals are more or less crumpled, and this crumpling must be imitated, in order to give an accurate model of the flower. Fine the edges well with the smallest curling-pin first, and then roll a larger one round and round in the centre of the petal, so as to hollow it completely, and put a little plait at the bottom of the petal, so as to pucker it in a little; this is easily done with the pin, when the petal is softened by the warmth of the hand, or by the breath if the wax seems brittle and inclined to split. Nos. 3, 4, and 5 will require to be turned back at the upper edges, by rolling them over the curling-pin point, and the three outer petals (No. 5) will often need a good deal of crumpling between the fingers, and perhaps a fold all down the centre; the edges, too, may be a little bitten by insects, and any defect of this kind, copied, adds to the perfection of the imitation of the blossom. The rose must be mounted on a thick wire stalk, prepared with a foundation bud like that of the camellia, but larger; the first two smaller petals wrap it round entirely, and the three remaining ones must be put standing up round the bud, nearly touching each other at the upper edges; these are bound on with a narrow strip of white wax, well rubbed in by the moulding tool; then the next row of petals is put on behind the others, one side always lapping over the other; each petal between two front ones, a little raised, so as just to appear above these, and this is bound on with another strip, and so on. Nos. 4 and 5 should fall back a little, and the three outer petals should be placed rather below the last row, so as scarcely to be visible in front of the rose. The five sepals of the calyx

(No. 6) are to be cut out in two shades of green wax, snipped at the edges, and well moulded in the hand, and pinched into points; and put on so that the points may come between the five larger petals, over the three outer ones. The seed-pod is made by rolling a doubled strip of green wax round and round the wire stalk, and moulding it with a moulding tool exactly into the shape of the seed-pod; and when it is quite smooth and round, pushing it up into its place below the sepals. This part of the rose must be very nicely finished, so as exactly to imitate the back of the real rose. The stalk must be covered with strips of green wax, to make it of the required thickness, and the leaves (and buds, if there are to be any) put on in their proper positions. If the buds are green, they must be made by putting the five sepals round a small foundation bud, mounted on a wire stalk, and closing them up at the points; if they are beginning to show their colour, three of the rose petals No. 1 must be put round the foundation bud first; if opening still more, three of No. 2 will be wanted also before the sepals are put on; a smaller seed-pod is to be made and pushed up under these, as in the full-blown flower, and it must be neatly finished in the same manner—observing and imitating every peculiarity of the original: binding the stalk if required, and tinging it and the sepals and seed-pod with a little liquid carmine paint, or brown, if they are coloured thus in nature.

The leaves are modelled in the same way as directed for the camellia leaves; and great care must be taken to get the exact impression of every vein in the real rose leaves, to mould and curl the edges, and to mount each spray accurately. Small bracts, or stipules, are sometimes needed where it is attached to the flower stalk, and these and the edges of the leaves may require a little colouring, as well as the stalks.

### THE YELLOW TEA-SCENTED ROSE.



All the Yellow Roses may be copied to perfection, if care be taken to colour them exactly, shading the petals so as to give the deeper yellow centre, fading into primrose colour, or white, at the edges of the petals, and to crumple them sufficiently. For the yellow Tea Rose, three (or five) of Nos. 1, 2, 3, 4, 5, and three of No. 6, will be required. They must be bloomed and coloured on both sides. The three outer petals will generally require dashes



of red or pink powder, to give the discoloration which is usually to be seen in these. All must be well moulded, and hollowed in the hand with the largest curling-pin, or a ball tool, such as is used for paper flower making. It is necessary to use tolerably thick white wax for these roses, in order to roll them out, so to speak, sufficiently. Some of the yellow roses, like the pattern, are cone-shaped, and require to be mounted in threes on a very long foundation bud; others are flatter, and have five petals in a row; and some roses require to be made on a ball-shaped bud, and the petals must be very much hollowed or cupped. This is especially the case with a very delicate pink rose, the *Coupe d'Hébe*. A fine large blush rose, the *Souvenir de Malmaison*, has a triangular kind of centre; to imitate which a number of small petals should be placed within a large petal, which should be folded round them; and three of these bunches of petals mounted on a small foundation bud will begin the rose, and the larger petals must be placed round them in rows of fives, as before directed, ending always with three outer petals placed below the largest row. This rose must be delicately coloured with pink, and a little pale yellow must be added where this colouring is seen on the petals. The inner petals are deeper in colour than the outer ones. The white *Lamarque Noisette* is tinged with a sulphur colour in the centre. This rose is extremely pretty, surrounded with buds of various sizes. The *Solfaterra* models very well, requiring a colouring of yellow and pink. The *Ophrie* is still deeper in colour, and can be copied exactly by tinting the petals with various gradations of salmon, yellow, and rose colours. All these roses are best modelled in white wax. The Austrian and yellow Scotch Roses should be done in yellow wax. The *Cloth of Gold* requires white wax to give the gradations of colouring. Some of the deep pink roses are best coloured without blooming, by rubbing Barnard's *rose lake* over the petals; for crimson roses these should be rubbed on one side with *rose lake*, and with carmine on the inner side; for red roses with a more scarlet hue, such as *Géant de Batailles*, it is necessary to paint the petals after rubbing them on the inner side, with liquid carmine paint, mixed with weak gum-water, and put on as dry as possible with a poonah brush. An occasional dash of burnt carmine or violet paint will add to the natural appearance of the rose, and the outer petals will require this darkening, especially at the edges, where they become soiled by rain, &c.

The sepals of each rose must be carefully copied: they vary much in character and colour—some turn back from the flower over the seed-pod, and are almost flat, others are much cupped and adhere closely to it; some are fringed, others smooth. The Moss Roses must have tiny branches of fine feather moss gummed upon them. The thorns on the stalks may be imitated by modelling little pieces of wax to the right shape, and sticking them on, and painting them brown or red, and the hairy appearance of some of the stalks may be given by gumming down on them.

The Single Roses and many of the semi-double ones must have a number of stamens in the centre instead of the foundation bud. These are made in the same manner as described for the nemophila stamens, but they must be cut out of long strips of white or pale lemon wax, with a narrow strip of

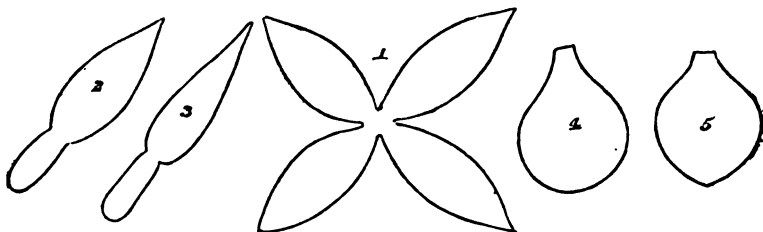
yellow wax folded over one side for the anthers, and rolled round a green style, formed by enclosing the top of the wire stalk in green wax, and indenting it with the curling-pin; and the anthers must be brushed over with a little gum and powdered with orange or brown powder, to represent the pollen fresh or discoloured. The stamens must be cut as thin as possible, and of the right length; care must be taken to bind them on regularly and firmly, so that the centre of the flower may not slip off the wire stalk.

The wild Dog Roses and Brier Roses are exceedingly pretty modelled, and their stamens are numerous.

In these, and in Cluster Roses, it is well to do some centres with the sepals of the calyx falling back, without the corolla, as the petals so frequently fall off; and all should have buds and half-blown flowers.

The Myrtle, Orange blossom, Apple blossom, &c., have their stamens formed in the same way. All model exceedingly well. The stamens of the Fuchsia, which I am now about to describe, must be differently made.

### THE FUCHSIA.



The pistil of the Fuchsia is formed of fine white or green wire: it must be cut large enough to form the flower stalk: it must be very thin, or the blossom will not fall gracefully. Cover it with the narrowest strip of white wax, which will enclose it, and put a little knob at the top of it for the stigma. The stamens should be made of lengths of cotton, thick or thin, according to those of the flower you are copying, either dipped in melted wax or well rubbed across a ball of white wax, made up by the fingers from the cuttings of wax. They must be cut of the right lengths, eight for each blossom, four of which are generally shorter than the others; thickened at the points for the anthers, and coloured with liquid paint, pink or red. The anthers should be dipped in gum and powder, to give the pollen upon them. The stamens are placed round the pistil, allowing it to hang at the proper distance below them, and bound neatly round it with a strip of wax. The corolla and calyx must both be cut out of thick wax; the calyx will generally require double wax. For the White Fuchsias, the sepals (No. 2 or 3) must be bloomed entirely on the outer side, and partially on the inner side, the parts forming the tube of the flower being left untouched. They are mostly tinged with pink inside and out, and tipped with pale green.

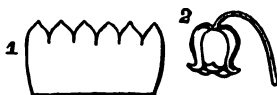
The petals of the corolla (No. 4 or 5) must be rubbed with colour, not bloomed; some require rose madder, some rose lake, madder lake, and carmine, or mixtures of these colours. The petals of the Red Fuchsias vary equally in colour. Those which are of a very deep violet purple should be first tinged with carmine in the centre, and the deepest purple powder rubbed round this: the sepals must be rubbed with carmine, and the outer side of those of some of the glossy Scarlet Fuchsias should have another colouring of liquid carmine paint. The petals of the corolla must be moulded and hollowed with the curling-pin; some are put on in pairs, and others lap one over the other. The sepals require a little moulding and a crease down the centre; some turn quite back, and are termed *reflexed*, while others are quite globular, and must be hollowed accordingly. Great attention must be paid to the neat formation of the tube of the fuchsia: in some cases it may be found easier to cut the calyx in one piece, like Fig. 1, and to form the tube afterwards, by rolling strips of white wax round the stalk, and colouring it afterwards. The seed-pod is formed by a little ball of green wax pushed up to the base of the calyx tube. The larger buds are formed of the sepals of the calyx, laid upon a foundation bud of solid wax, and fastened at the points; the smaller ones of foundation buds alone, formed of white or green wax, coloured as required. The spray must be made up of very small buds and leaves at the top, with larger buds, leaves, and blossoms mounted in pairs along the stalk, and must droop gracefully from it. The Victoria Fuchsia has red veins on its white petals, which must of course be painted; and there is a new red fuchsia, called the "Pillar of Gold," which is remarkable for its variegated leaves of greenish yellow, with red veins. These must be tinted and veined, after the impression has been taken from the natural leaves.

### LILIES.

The pistils and stamens of the smaller Lilies must be done in the same manner as those of the fuchsias. Those of the white Garden Lily and Japan Lilies must have fine white wire for their stamens, and anthers made of yellow wax, dipped in gum and powder, must be attached to their points. The petals and sepals must be made of double wax, and will require a piece of fine white wire between the sheets, to prevent their breaking. The Tiger Lilies, the common Japan Lilies, and the new Golden Lily have all coloured raised spots on their blossoms, the effect of which may be given by making indentations at the back of the petals with the point of a moulding tool, so as to raise the spot, which is afterwards to be painted of the proper colour. Both yellow and white Water Lilies can be accurately modelled. The large flat receptacle in the centre must be formed of yellow wax, indented with the curling-pin and moulding tools, and the stamens cut out and moulded after the pattern of the original stamens. They look well mounted on a piece of looking-glass, within a glass shade, if plenty of leaves are arranged round two or three blossoms and buds, the reflection giving the effect of water.

## THE LILY OF THE VALLEY.

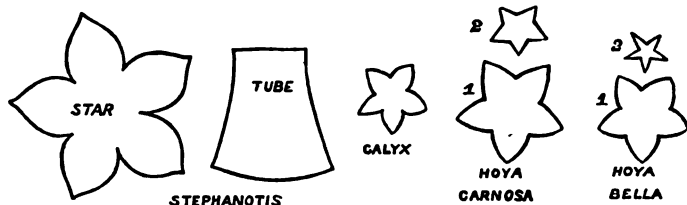
The Lily of the Valley may be modelled either by cutting out a straight piece of white wax, for the corolla, like Fig. 1; moulding and joining it, and curling back the six notches with the curling-pin; or by dipping the rounded ends of pencils or pen-sticks, &c., of various sizes, in melted white wax, after dipping them in cold water. The little bells of wax congeal round the cold wet pencil, and are easily removed when quite cold, and notched and curled into shape. In either case the bells must be of graduated sizes, and



little stalks must be passed through each, headed by the pistil and six little stamens. Very small flowers or buds must be put at the top of the flower stalk, and the larger bells follow at intervals on each side of the stalk, alternately, with little green leaflets at the base of each bell stalk. From nine to thirteen flowers are generally on one stem, which should be mounted between a pair of long leaves, deeply lined from the stalk to the point with parallel lines.

Some of the small Heath blossoms and bells may be moulded in the same way as the lily bells, and wooden moulds are sold for the purpose of forming the flowers, by dipping them into the melted wax. Those with larger tubes would be better done by cutting them separately and joining them.

## THE STEPHANOTIS AND HOYA.



Another flower with a tube, the Stephanotis, which is exceedingly well imitated in wax, is made in two parts—a star and a tube—each cut out of four thicknesses of wax. The star is curled back, and the points are pinched downwards. The tube is joined, and the star being laid upon it with its centre exactly over the hollow tube, the moulding tool is pushed through it, and the wax pushed against the sides of the tube, and worked round within it, till the star is firmly attached to it. Then a stalk, covered with a little knob of wax, is pushed into the other end of the tube, and the wax closed round it; and a calyx of green wax, cut out also like a star, pushed up to

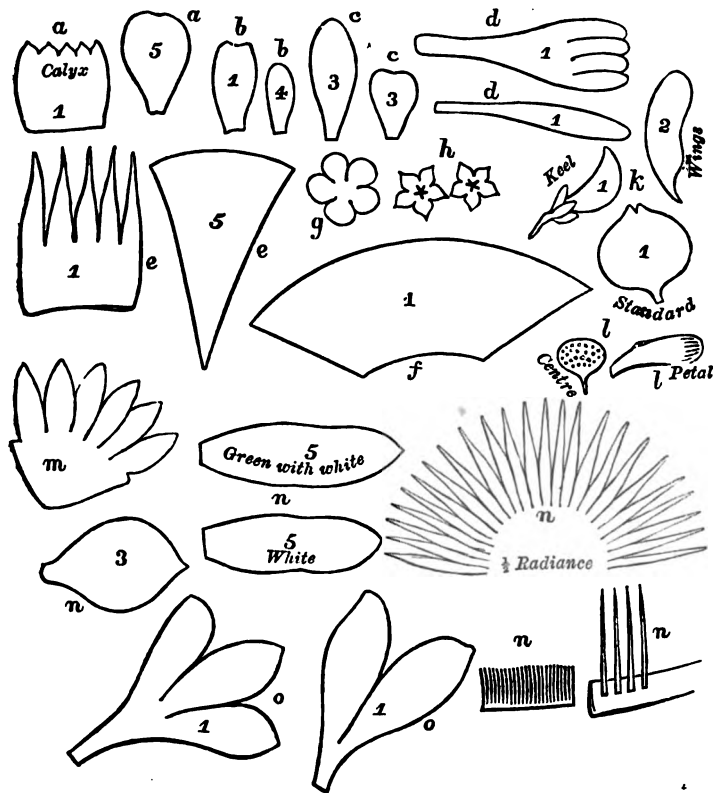
the base of the white tube. A little gum is dropped into the tube, and some white down put into it completes the flower. Wreaths of stephanotis are very pretty made with a number of blossoms, half-opened flowers and buds, and leaves.

The flowers of the *Hoya Carnosa* and *Hoya Bella* are made much in the same way, by cutting out stars in double white wax, and turning the points downwards. Smaller stars of lemon wax are placed upon each, and the points turned upwards. These require to be painted, the former with a red star, and the latter with a violet one. The *Hoya Carnosa* has a velvet-like texture, and must be bloomed with a mixture of bloom, frost, and pale pink powder, so as to give its flesh colour. Another little star forms the calyx, and this, as well as the stalks of the flowers, must be coloured pink. The wire stalks must be pushed into the blossoms, and a little spot of white paint should be put exactly in the centre of the flower. A tiny drop of gum-water may be put upon some of the blossoms, to represent the honey-like exudation. From twenty to thirty blossoms would be needed for one corymb; and if some are made half opening, and the others with the star points folding inwards and meeting in the centre, the effect would be more natural. Two leaves should be put where all the stalks meet and a thick stem made, covered with dark green wax painted brown. The *Hoya Bella* is a smaller flower, and has much fewer blossoms on its corymbs. It is exceedingly pretty and delicate, and being naturally wax-like, is admirably to be imitated.

The *Alamandas*, *Dipladenias*, and many hothouse flowers can be very accurately modelled in wax, and a great many of the rare and beautiful orchids also; but it would be impossible to give directions for modelling all these; moreover, they cannot be easily obtained to work from, and it is impossible to make all their component parts correctly without this. As a rule, the smallest and most insignificant-looking flowers are the most troublesome to model, the *Mignonette* especially so, but it may be copied accurately by taking the real flowers to pieces, and imitating their several parts exactly. The Hawthorn blossoms, Laburnum, Lilac, and the field flowers, Primrose, Cowslip, Violet, Daisy, Snowdrop, &c., are extremely pretty in wax. I give diagrams of the most favourite flowers, to assist those who wish to make them; but I recommend no one to attempt their manufacture without having the real flower to copy. (See opposite page.)

The *Convolvulus Major* should be made up with five petals placed behind the notched piece, which is joined to form a star within them. The flower must be moulded and made up before it is bloomed or coloured, or the star cannot be firmly fastened over the joins of the petals. It is troublesome to make, and might be more easily made up on a mould sold for the purpose. The smaller *Convolvulus* and the *Wild Bindweed* might be cut out in one piece and joined, but they should still have the star in the centre. The tendrils required for these flowers, and for the *Passion Flowers*, are made by covering fine wire with strips of wax, and rolling it round a pencil, or a curling-pin if smaller coils are wanted. All the parts of the last-mentioned flowers must be most carefully modelled after nature. The radiance, if of the common

blue Passion Flower, may be cut out in circles, like the pattern given, two placed one above each other; but when the rays are thicker, as in the "Bonaparte" Passion Flower, they should be cut out of doubled wax separately, fastened on to strips of wax, and rolled round the centre of the flower. This centre is made by snipping doubled strips of wax, after the fashion of the style of the single rose, colouring them of the proper colours, and rolling them round the column. The pistil has three styles, with round stigmas, which must be coloured and put on separately, as well as five stamens,



*a, a*, Primrose; *b, b*, Violet; *c, c*, Snowdrop; *d, d*, Honeysuckle; *e, e*, Convolvulus;  
*f*, small Bindweed; *g*, Hawthorn; *h*, Forget-me-not; *k*, Laburnum; *l, l*, Daisy; *m*, Hyacinth;  
*n, n, n, n, n*, Passion Flower; *o, o*, Azalea.

which should have a fine wire in their centre to support them in their proper position.

The Poppies and Anemones should have their large seed-pods showing in the centre of the flower. These are modelled in solid wax, and marked and moulded with the curling-pin and moulding tool. The former have generally green seed-pods, but the latter must be coloured black or very deep purple; and the stamens put round them are also black or purple. The Daisy centre is moulded in yellow wax, and pricked, and jagged, and powdered, to give the compact head of flowerets.

Very pretty nosegays of wild flowers may be made of the blue Cornflower, red Poppy, and Ox-eye Daisy, the little yellow Crowfoot, or Bird's-foot Trefoil, and pink and white Bindweed, put together. Another of pink and white Dog Roses, Honeysuckles, and blue Forget-me-nots. Violets, Primroses, and Snowdrops look best, I think, apart; and if several blossoms and leaves are arranged in the form of a plant, and put into a little pot of mould or sand, they will look exceedingly well. A tiny "Baby Rose" may be made as a plant, and a small Fuchsia also. A Hyacinth may be modelled entirely of wax—buds, flowers, leaves, stalk, bulb, and roots—and if put into a hyacinth-glass, it will completely deceive the eye as to its reality.

As a rule, hothouse, greenhouse, and garden flowers look best in separate bouquets, and it is a mistake to put those which bloom at different seasons of the year together.

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## WAX FRUIT MODELLING.

The wax imitations of fruit are made in a totally different manner from the flowers. Moulds must first be made in plaster of Paris, which has the property of forming a chemical union with water, and makes a paste which rapidly "sets" into a hard substance. The fruit to be modelled must have a perfect cast taken of it, into which melted wax must afterwards be poured. It must be placed in fine sand, and the plaster poured over half or three quarters of it, according to the nature of the mould required. Oranges, Lemons, Apples, Pears, &c., are generally cast in half-moulds; but some few fruits are cast *solid*, and a hole is made in the mould to correspond with the part in which the stalk is to be inserted. The Strawberry, Raspberry, and Mulberry may be cast in this way. The larger fruits are cast *hollow*, in the following manner: The two pieces of the plaster of Paris must be soaked in hot water for ten minutes, while the wax is slowly melted in a small tin saucepan with a spout; it must not be allowed to boil, or it will become discoloured. As soon as it is thoroughly melted, the colour must be put in of the ground of the fruit to be copied, either in powder or in oil paint, and well stirred round, so that it may not settle on one part while the mixture is poured into the mould. The moisture must be gently removed from this with a handkerchief or soft cloth, and the melted wax poured into one half.

of the mould. The other half is then to be fitted exactly upon that.\* and the two pieces are to be held closely together, and turned about in every direction, so that the wax model may be of the same thickness throughout. After doing this for about two minutes, the mould may be held in cold water to cool it more quickly; but it must be still turned about till the wax is quite congealed. This is known by the cessation of the sound of the fluid when the mould is shaken. As soon as it is quite cold, the halves are to be carefully separated, and the fruit will be turned out of the mould perfectly formed, needing only a little trimming, perhaps, where the halves of the mould have been joined. The Apple, Pear, Lemon, Citron, Peach, and many other fruits are made thus, a long fruit being always laid in the sand lengthways, and a short one stalkways, in order to make the half-moulds of a shape easily removed from the model. If there are great irregularities in the fruit, more than two moulds may be required. The stalks are made like those of wax flowers: a clove pushed into the apple will give the dry calyx at its flower end. Some very glossy fruits require varnishing with mastic, but the wax may generally be sufficiently polished by rubbing it. Carmine and many other powders require only to be gently rubbed over the fruit to colour it with the markings on the ground colour, as in the apple. Streaks of colour must be put on with a brush, a little spirits of turpentine or mastic varnish being added to the powder colour if that is used, as the wax would not take water colour. The down upon peaches may be given by blowing a little flock (used by paper stainers) over it, after wetting it with turpentine or mastic: the red blush upon Plums must be given by colouring before this is put on. The bloom upon these and upon Grapes is given by dusting a little common powder blue over them: White Grapes should have hair-powder instead of this.

The small clustered fruits, Grapes, Currants, &c., are not made by casting, but are best imitated by dipping moulds or balls of glass sold for the purpose into melted wax, first putting stalks into the balls by dipping the wire cut into the right lengths into it, and inserting it into the hole left for the purpose. Dip them now into the wax, which must have been previously coloured as required, and drawing them out quickly, hold them up to cool with the stalk downwards, that the wax may settle down upon the lowest part: if it is too large at the stalk end, it may be pared off when cool. The stalks should be covered with light green wax, and the cluster put together, and finished by dusting them with blue or hair-powder. White fruit is imitated by using wax slightly tinged with yellow. Red Currants may be dipped in coloured wax, or painted with carmine afterwards: Black Currants will require painting. The seeds which are sometimes seen through the transparent skins of Currants may be imitated by marking the balls with oval dots of chrome, worked up with mastic or thick gum, before they are dipped into the wax; but this must be done a day or two before they are made, to allow the dots to become quite dry and hard.

\* They must be made with projections and hollows, so as to fit exactly into each other like a ball into a cup.



Experience alone can enable us to discover the right degree of liquefaction in the melted wax. If it has been made too hot, it will sometimes adhere to the mould when cast in plaster of Paris, or cover the balls dipped in it too thinly; if it is too cool and thick, it will congeal in ridges or unevenly. Any indentations resembling those of the natural fruit may be given by pricking the mould with the curling pin or the moulding tool before it becomes quite hard. All this will be found out in the course of practice by attentive observation of the fruit desired to be copied.

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## PAPER FLOWER MAKING.

This art is, I consider, much inferior to that of wax flower modelling. A few flowers may, indeed, be copied nearly as well, but these are generally imitated by stamped petals and blossoms, which have only to be mounted on their stalks, and their buds and leaves attached to them, to be finished. The great charm of wax flower making is, that we can copy the individual flower throughout, and give its characteristics exactly, instead of making all of one pattern; and moreover the work is our own, and the excellence of the imitation due to our own painstaking, instead of to that of the manufacturer, who does more than half the work; for stamens, calyx, seed-pod, blossom, bud, and leaves are all sold ready prepared, and cannot be made out of sheets of paper.

On the otherhand, paper flowers are more useful, perhaps, and more durable than waxen ones, and they decorate our rooms very prettily, when winter affords no real flowers with which to adorn them.

I will give directions for making those which imitate Nature most exactly, and which require something to be done beyond the mere mounting of flowers and leaves on their stalks.

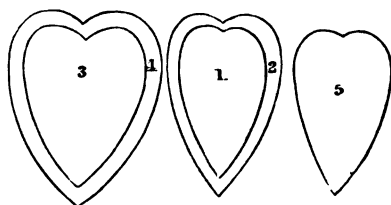
· Various tinted papers are sold for the purpose: carmine paper for the poppies, vermilion ditto for the pomegranates, &c., and striped and shaded papers for carnations and roses. Carnations are generally made by using the circles sold ready cut out, crimping them up, and passing the wire stalk through them and the calyx, gumming them firmly into this.

The roses require more work. Curling-pins, ball tools of various sizes, and a pair of nippers are needed, as well as scissors, and gum-water mixed with a little sugar, for their construction. They must be modelled, too, on a lead pincushion, or some firm square cushion stuffed with bran, which will resist pressure without being hard. A leather pad would answer the purpose.

## THE MONTHLY CHINA ROSE.

More petals are required for paper than for wax roses, and they are rather longer in shape, most of them being moulded one within the other. Cut the ten smaller petals out of the palest part of the pink paper, and the others of somewhat deeper colour, the three outer ones so as to have the upper part

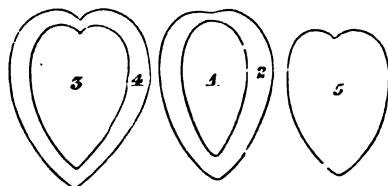
of the petal of the deepest hue. Mould each set of petals together, by placing them on the cushion, and drawing the ball tool of the requisite size firmly down from the top to the bottom of the petals; this will hollow and crumple them so as to present the crumpled appearance of rose leaves; and the edges of the larger ones must be curled back with the curling-pin or the nippers, by drawing these sharply behind them. The small petals should then be placed within the larger ones (excepting the five of No. 4 and three of No. 5, which are put on separately), gummed at the points, and put on in



Five of No. 4; ten of No. 3; five of No. 1; three outer petals.

a body, by taking them up all together with the nippers, dipping the points in gum, attaching them to the cluster of stamens forming the heart of the rose, and winding a little fine thread round each bunch of petals. The five largest petals, and the three outer ones, are put on with gum and thread below and between the others, and the stalk is passed through the prepared calyx and seed-pod, and finished by winding narrow strips of green or brown paper, gummed at each end, round the stalk. The buds and leaves are fastened to the stem by winding paper round them in the same way.

### LARGE WHITE OR YELLOW ROSE.



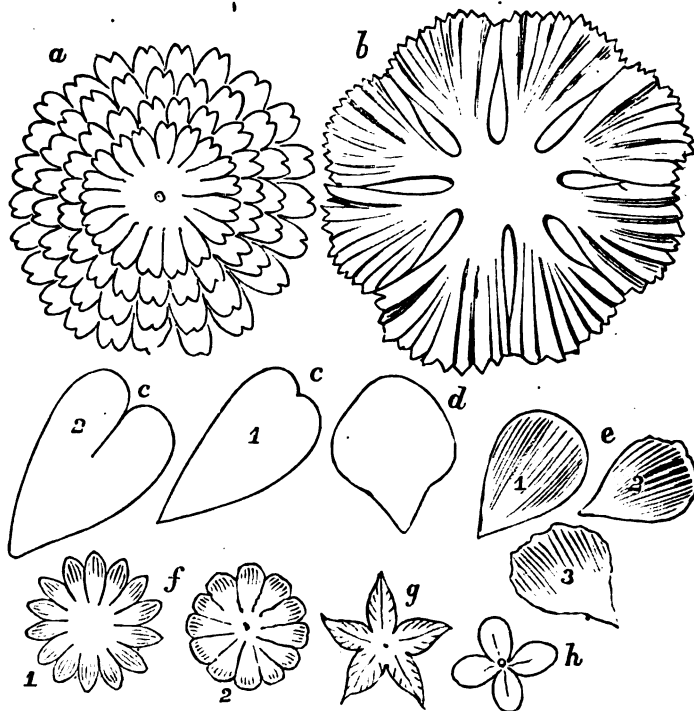
Ten of each size (3, 4, 1, 2); five outer petals.

The large White Roses are made in white paper, either prepared for the purpose by tinting stripes of it with primrose colour, in which case the petals must have their points cut out of the striped part of the paper, or wholly white, in which case they must have a little pale chrome rubbed into them. The paper for Yellow Roses is generally prepared with stripes of a deeper shade across it; but if unshaded, the petals must be coloured in the same way with a deeper shade of chrome.

Some of the Variegated Roses are very pretty, made in paper of different

colours mixed together, according to the colour of the real rose. All are done in the same way, with due observation of the characteristic peculiarities of each species.

The Single and Double Poppies are cut out in separate petals and put on with gum and thread round the seed-pod; if not prepared, they will require to be painted in the centre of the petals; the larger ones must be cupped by drawing the ball tool down them, as directed for rose leaves, and they should be crinkled by drawing the nippers, slightly opened, down several of the petals, placed one upon another on the cushion. This will form rib-like marks, and pucker up the lower part of the petals.



a. Chrysanthemum—five of each size; b. Carnation—five; c. Pomegranate—2, twenty, 1, fifteen; d. *Pyrus Japonica*—five; e. Wallflower—1, one, 2, two, 3, two; f. Cineraria; g, Jessamine; h, Clematis.

Carnations require only a little crumpling in the fingers: they must be folded in and out, to give the appearance of the real flower, and the stalk,

with its forked pointal, drawn through each of the circles and then through the calyx; the centre of each circle being touched with gum, so that they may adhere to each other.

The Pomegranate is very effective in paper. A little foundation bud should be made by rolling a strip of the pomegranate paper round the wire stalk, and the smaller petals are put on in threes together, five in a row, the larger ones being placed round them in like manner; all should be well crumpled and crinkled with the nippers before they are put on, and the points must be gummed together, so that the flower may not fall to pieces. The blossom must be gummed into the calyx, which is generally lined with cotton wool, and the stem must be covered with reddish brown paper. A spray of pomegranates should be made with two or three buds at the top, three or four flowers and some leaves underneath these.

Chrysanthemums are pretty in paper. They are often sold in tinted circles of various sizes, but the white ones may be cut out of paper, tinted with a little primrose colour in the centres. The points must be ribbed by drawing the nippers, slightly opened, sharply down each, and this is most easily done by placing several circles together on the cushion and moulding them together. They are not so easily broken thus as when done separately. Then they must be separated, and gummed together on the stalk, the smallest petals closing up, and the larger ones lying flat behind them. Wreaths of these flowers are pretty for the hair.

I give a few diagrams of the blossoms of various flowers, to show their conformation, which will, I think, be sufficient to enable my readers to carry out my directions for the manufacture of paper flowers. (See opposite page.)

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## CHURCH DECORATIONS.

Perhaps there is nothing that "we girls" love better than decorations of all sorts, and perhaps, too, somewhat of the "poms and vanities" may be hidden in this love when confined only to our personal adornment, and made to hide our false proportions or exhibit our fondly-imagined beauty. But there are some decorations so softening and elevating in their character that they cannot fail to win favour with all. I mean Floral Decorations. Although these are the most fleeting, yet are they among the sweetest expressions of affection to those we love best. The birthday, the feast, the home, the church, even the grave, are made eloquent by floral decoration, which, alike in joy and in sorrow, speak a language "understood of the people." We shall therefore give willing hearts and uninitiated hands a few hints which may help them to express themselves in this language more easily and gracefully. In doing this, we shall confine ourselves principally to Church Decoration, neither staying to admire the antiquity or to question the propriety of the custom, but because it embraces so large a field of artistic arrangement and symbolic design, that she who can decorate a church on the great festivals, in accordance with architectural style and mystic significance, will

be at no loss how to proceed when called to narrower bounds and less important commemorations.

The first rule in decoration should be to work in harmony with the architectural features of the building. If this rule be lost sight of, however elegant each separate design may be, the general effect will be incongruous and unsymmetrical.

Decorations, then, should be disposed in agreement with the principal lines and leading ornamentation of the church. Festoons and wreaths which would please the eye when hung from window to window, as we have seen them in many a continental street, would be sadly out of place against a wall where long severe lines, either horizontal or perpendicular, demand nothing beyond a border of orderly clusters of berries, or a tasteful arrangement of dark shining leaves. Wherever architectural leaf-work has been or might have been displayed, here may natural foliage appear with grace and propriety. Hollow mouldings may be filled with wreaths proportioned to their size, rich in leaf, berry, and blossom, and pointed arches may break into bloom with harvest rejoicings or Christmas thanksgiving. The tracery of the window, the bosses, the niches—all should be preserved in the integrity of their style, and helped by regular and appropriate adornment; and fonts, pulpits, reading-desks, and screens, alike be enriched with due regard to suitability of character. Let the panels break out into patterns of such design as you would have intrusted the sculptor to execute in carving of stone or of wood, let the tracery preserve its lace-like character in the delicacy and fineness of your wreaths, let your corbels be corbels, and your capitals capitals—in a word, let each feature be not only preserved but improved, and your decoration will be a help and not a hindrance to the beauty of the church.

Having given these general hints as to the first rule to be observed, we will proceed to details which may be useful to beginners. The directions will be given as plainly as possible, and will be merely rudimentary; a little practice, skill, and taste will supply all their imperfections. Most of the observations are the result of personal experience, and will often be given in the words of practical workers.

### WREATHS.

To make a thick wreath on cord it is necessary to employ two or three pairs of hands, one to feed the worker with small bunches of evergreens, and the others to supply wire, and to assist in holding and arranging the cord or twine to which the evergreens are to be attached. The cord should be secured either to a stout nail in the wall or to some firm support, neither too high nor too low for the worker, after the manner of rope-making. Unless this is done, there is danger of spoiling the wreath by loose workmanship, or by an untimely fall. It is usual to twist fine cord round the rope, knotting the string at intervals to give it firmness; but fine wire is preferable, both for strength and neatness. This wire is sold in coils, and is about the fineness of carpet thread; it is easily cut into lengths with ordinary

scissors, and is so flexible that one or two gentle and firm bends will secure the bunches of evergreens in the thickest wreath. Care must be observed to select twigs as free as possible from hard stiff stems: these too often stick out ungracefully, and not unfrequently cause the wreath to fall to pieces. It is sometimes a good plan to "wire on" the coarser pieces of evergreen first, and then proceed to arrange the delicate sprays and coloured portions of the decorations, such as alternate bunches of berries or flowers, so as to preserve a regular repetition of design. There is nothing better for a rich wreath than large leaves of ivy, fastened round the cord, say six or eight at a time, in the way described above, the sharp outline and light and shade of the leaves producing a delightful effect; and in towns, wherever greens are rare and costly, these ivy wreaths are invaluable. The long runners of delicate ivy fastened together make elegant wreathing along a wall course. Many yards may be made in a short time from the long runners, which cling closely to a paling, or hang their pendent shoots from an old wall; and if here and there the sprays be allowed to fall, forming a sort of fringe of natural foliage, the lightness and elegance of the wreath is admirable. The tracery of windows may also be marked out by the close "creeping ivy green" with much advantage, and the woodwork of a screen may be enriched by the same adornment. Moss wreaths are delicate and pliant, and the brightness and softness of the green makes them favourite wreaths for fountains or minute stonework. Holly leaves strung together are used in large churches where time and length of wreaths are needed, but these are chiefly valuable because they can be strung together by little children, and afford even the youngest the privilege of taking part in the decorations. Laurel seldom answers for wreaths; it fades quickly, and is also too stiff and uncompromising to fall gracefully, but it is excellent for ornamental moulding when sewn on buckram or brown paper. Care must be taken not to wound the leaf, and to allow the thread to cross the middle vein, otherwise the leaf shrinks, and not unfrequently falls off, leaving an awkward gap in our dog-tooth ornament or flat-symmetrical border.

"This year," says a correspondent, "we marked out the shape of our windows with narrow wreaths made of holly leaves sewn on green calico, about two leaves in width. Red braid looks very well for the latter sort of wreath, then little bunches may be sewn on. The scarlet braid may show through."

Wreaths for arches may be made on laths, which, resting on the capital of the pillar, will spring together and fit themselves without nailing. Should flowers be used in these wreaths, a little damp moss sewn in with them will keep them fresh for a long time; and berries may be glued to sprigs of yew or holly. Everlastings may also be attached in the same way when their stalks are too short to fasten them on in bunches.

### TEXTS.

A favourite and an instructive mode of covering wall spaces is that of Texts; but these should rest in small churches under the wall plate, or on

scrolls, and in larger churches they should be well kept up, and regard should always be had to the proportion as to size, and to the distance from the eye. Inscriptions which from their bareness and flatness remind one forcibly of sign boards or advertisements, are certainly neither ornamental nor pleasing. In making letters for these texts, care should be taken to leave the outline clear, as at a distance a letter is often distorted by a stray leaf, and nothing therefore should be done without rule and measure. Few things are more unsightly than an *S* which has lost its balance, or an *M* unsteady on its legs. For scrolls of large size, 6-inch letters are suitable. These are easily made of brown paper, and the leaves and berries are sewn on. They can then be either pinned on a band of unbleached calico, which resembles stone in its colour, and at a great height is not to be distinguished from the wall, or they may be fastened to richer backgrounds, interspersed with diaper-work, and filled in with bosses of flowers or berries, and framed in an elaborate border of foliage. Sprigs of box sewn on letters cut out of crimson flock or gilt wall-paper have a pretty bright effect. If the outline is kept clear and distinct, the text becomes a beautiful illumination, relieved and improved by the green shining leaves of the box. We think small sprigs of yew, box, or fir, look better on these paper letters than mere leaf tacking, which is sometimes so stiff and flat as to emulate the labour of the sign painter. And as all decorations, especially those at Christmas, are intended to bring together the glory of Lebanon, the fir tree, the pine tree, and the box, to beautify the sanctuary, anything like upholstery or artificial decoration should be carefully avoided. Berries, Scotch fir, box, and everlasting flowers are all useful for small letters. Everlasting flowers will easily fasten on perforated card with thick gum if the stalks are carefully and closely cut off, but in most cases glue for berries and everlastings is preferable. There is a prepared and almost colourless glue which may be obtained for this purpose. The large brown paper letters, when well covered with holly leaves, can be pasted easily on the wall of a church, and leave no trace on removal. We saw the Angels' Song so disposed at Christmas with remarkably good effect. The paste must of course be made stiff; beer is found to answer better than water in boiling it.

#### SYMBOLIC DEVICES.

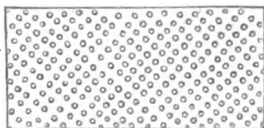
These are so various in character, and depend so entirely upon time, place, and occasion, that we can only give a few practical suggestions respecting their manufacture, leaving it to every girl to exercise her own taste and feeling as opportunity may arise.

"One year," says a correspondent, "we had our designs made in wood, and nailed the leaves on; but we found that too expensive, especially as we like to vary the designs. At Easter we pasted brown paper on green calico, then cut out the designs, and sewed leaves, &c. on, and it had a very good effect. We fastened them on the wall with small nails, which did not hurt it." There is really no reason why wooden devices should be expensive. A village carpenter, or, what is even better a home-made carpenter, can soon

nail together triangles and monograms, and provided the wood is not heavy it matters not how rough the material is. The best way to cover the wood is to nail on small sprigs of yew, box, holly, or flowers, securing a bit of black tape round the stalks, and then nailing them on the wooden device, much in the same way as gardeners nail fruit trees to a wall; in this manner it is easy to work out an orderly pattern of berry and leaf, projecting in rich masses of light and shade, and at the same time to preserve the fine outline of a monogram or symbolic device.

"Where expense is no object fine patterns may be procured, but these are at present limited in design and afford but little variety. In putting everlasting flowers or berries on zinc, it is wise to have the zinc first painted, as it insures adhesion, which is often a difficulty, arising from the smooth surface of the metal."

"If you use flowers," says another correspondent, "such as geraniums, azaleas, or any perishable blossom, it is better always to secure them by putting a drop of very thin gum into each flower; and if to be formed into any device, it is best to cover the wooden foundation with moss or wadding, and then, beginning at the bottom of the device, to work upwards. As the flowers are put on, a camel's-hair brush must be drawn gently behind each row of flowers, to gum the stalks at the back and insure their not moving from their places. If the flowers are required to last some days, it is better to have the zinc pattern made with sliding back and perforated front, thus:



The inside of the frame should be filled with wet moss,\* and the flowers set in from the front, so that their stems are kept moist. Scrolls made of white buckram, tightly strained upon a slight wooden frame, may have the text worked in moss by piercing holes in the buckram and setting in small tufts of moss as even as possible, so that the moss letters are raised about an inch from the surface; the reverse of the scroll should be red, made of flannel or other material. These letters are exceedingly effective when introduced into a device of holly or variegated green. In harvest-time a very pretty monogram was made with three kinds of grain, the cross thickly set with the red barberry. White everlastings sewn on paper for a cross look like carved ivory at a distance, and would show well on a dark pulpit. Juniper is very pretty to work in with other green, but is not serviceable in the finer kinds of work, as it grows in rather thick bunches. Hips are very useful in a winter when berries are scarce.

There is a beautiful African everlasting which is likely to become a great favourite with church decorators, the glossy white star-like leaves lending

\* Wet the moss with camphor in the water.—Ed.



themselves readily to the labour of love. We append a description of an altar cross made of these blossoms, the beauty of which can scarcely be described.

"The cross was a Greek cross, with floriated ends, made of perforated zinc, pikes of iron from the centre forming a star. The African flowers were entirely without stalks, and were sewn with fine white cotton to the perforated zinc as regularly as if sewn to canvas. Small pieces of yew were fastened to the spikes of wire forming the centre, so that they made a dark star behind the white cross. The whole was surrounded by a large wooden hoop, which was covered with a series of three leaves of variegated holly, alternately with small bunches of holly berries."

Diaper-work is another mode of enriching a plain wall surface. Examples of this, in stonework, may be seen in Lincoln and Westminster Abbey, and may be successfully imitated in its parent foliage. A diaper of cord or tape is made on calico, canvas, ouckram, or velvet, and the intersections may be worked with ears of corn crossed, with Scotch fir, jewelled berries, and light sprays of foliage, so as to make a regular and geometrical pattern. The squares may be filled up with rosettes of leaves, or with flowers, but girls should execute this with formal accuracy, alternating and arranging the colour and pattern with the greatest precision. After this manner a most elaborate reredos may be made, even from the designs of a Butterfield or a Scott. Use canvas for the framework, yew or box for the diaper, holly for the arches, and medallions of velvet filled with symbols, composed of masses of berries, everlastings, or even rice, and you will make a very successful wall-covering at the back of an altar, which may be worked out at a very small cost and with little labour.



This reredos was made for an apse. The framework was of coarse canvas; the diaper of yew, with yellow everlastings at the intersections; the cross and signs of the Evangelists of white everlastings, gummed on perforated cardboard, and outlined with black thread, and afterwards glued on red flock paper, and pasted on the canvas or pinned on with black pins. The *fleurs de lis* and other devices were made on paper in the same way, and the arches of rich holly. At Easter it was found easy to substitute flowers for the everlastings, and to use gorse in the place of holly.

We have spoken chiefly of Christmas decorations, because these are more difficult from Nature being then less prodigal of her floral gifts, and more

ingenuity and handiwork is therefore required. At Easter and at harvest-time flowers and cereals will make the work comparatively easy, and every lady will, by her taste and feeling, contribute new ideas to be enlarged upon and carried into new fields. The suggestions we have made are intended to show, as it were, the rudiments of decoration, and are rather explanatory of our hints than intended to fetter originality of design.

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## SHELLS.

Many of us, in our early days, have a great love for shells. One of our first remembrances is the smooth cool touch of a polished spotted Cowry, and the mysterious noise within it when held to our ears—a noise that we firmly believed to be the roaring of the sea from which it came; and “to pick up shells” was the prime delight to which we looked forward on a visit to the sea shore. It must be owned that this operation did not quite realize our expectations. At the very best, no spotted Cowries rewarded our researches; it was well if we found their smallest representative, the tiny wrinkled pinky “little pig;” or, on very favourable coasts, long Razor Shells, ribbed Cockles, lovely little transparent pink Tellens, and “Canary Birds” or yellow Nerites may perchance be secured, and, after severe sorting by the maids who had to pack them up, are brought home as trophies, with mayhap the addition of a cat made of a large Snail Shell perched upon a flat Pecten, with a plaster of Paris head and shell ears, a turkey cock with Pecten wings and tail, or a watch-stand plastered over with Tellens and Nerites. Then some naval relation brings home a precious basket of beautiful shells, and we wish to do them justice and learn their names; and we buy a little English sea-side book, which is scarcely of any use in dealing with foreign shells; and after a few attempts, resulting in bewilderment, we come to the conclusion that the pursuit of shells is trifling and dull: we put the handsomer ones on mantelpieces, and hide away the lesser ones in dusty boxes and baskets, whence, when some real shell lover disinters them, they come without their history and unable to tell the locality in which they were found.

There are many nice little books teaching the names of English shells; but the learning Conchology from English shells is like the old way of teaching village school-children the geography of Palestine and nothing else, for our cool seas do not own shells enough to illustrate the general outlines of the science.

Another difficulty in learning Conchology is the change of name that so many shells have undergone. When Linnæus classified and named shells, together with everything else in organized Nature, comparatively few were known; and those that he saw were for the most part the shells alone, without their inhabitants. He therefore arranged them by the forms and characteristics of the shells, classing them in the three great divisions of—Univalve, like a snail; Bivalve, like an oyster; and Multivalve, like an acorn shell; and he divided these classes into lesser genera, and these again

into species. But in the century since his death an infinity more of shells have been found, that could not be made to fit in with his genera. Moreover, on comparison of the animals, it was found that he had put together creatures that had little analogy to one another, and separated others that were almost similar to one another. His bivalves, indeed, are all inhabited by creatures alike enough to be placed together; but his univalves required to be very differently classed and arranged; and as to the multivalves, the animal of one turned out to be a Sea Slug, and to need to be placed among the others of his cousins, with shells or without; another was nearly related to some of the bivalves; and a third (the Barnacle) does not belong to a mollusk or shell-fish at all! Moreover, the fossil shells, in which in Linnæus's time people scarcely believed at all, some thinking them remnants of Noah's flood, and others freaks of Nature, had all to be classified together with their living kindred; and thus an entirely new



GAPING FILE SHELL  
OYSTER. (*Lima hians*.)



ANIMAL IN ITS SHELL.



COMMON WATER SNAIL.  
(*Limnæus stagnalis*.)

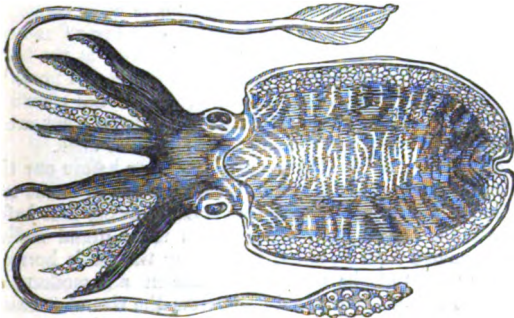
arrangement was required, involving the destruction of Linnæus's old genera, and change of his names, in a manner that has not been necessary in other branches of natural history, where his genus could remain, though the classes and orders above them might be altered.

Then comes the question, What is a shell? It is a covering formed of carbonate of lime for the protection of certain mollusks. Mollusks, again, are soft animals, cold blooded and devoid of bones, and covered with a skin or mantle, which has in most instances the power of secreting carbonate of lime, and forming it into a shell for the protection of its soft body. A common Slug is a mollusk without this shell-making power. The material is obtained from the quantity of carbonate of lime contained in the food of these animals, or dispersed in the water. Where there is no lime, there are no shells, and the thickness of the shell is generally in proportion to the quantity the unconscious little architect has been able to absorb, and to exude from the vessels of its skin or mantle. The froth that may be seen coming through a broken snail shell is this carbonate of lime bubbling

up to repair the damage; and unless the poor animal be injured to death, the new piece will quickly form and harden. In like manner, these wonderful dwellings are constantly being enlarged in proportion to the growth of the inhabitant.

The present system of Conchology arranges the shells according to the forms of their mollusks—putting foremost the most highly organized. It is not so convenient for outlying naturalists like ourselves, who seldom see the creatures, and never touch them if we can help it, but we must take what we are told of their construction on trust, and we thus learn something of the great order and rule of Nature. The Linnæan system was a dictionary, the Natural System is a grammar.

Mollusks are arranged, then, in two first great divisions, according to their possession or not of the last member one would have thought they could dispense with, namely, the head. Headed and unheaded mollusks, or, scien-



GREAT SEPIA OR CUTTLE-FISH.

tifically speaking, CEPHALOUS and ACEPHALOUS, are typified by the two most familiar instances, the Oyster and the Snail.

Leaving the headless community for a time, we proceed to divide the headed race into four great classes, which are marked by their feet or moving apparatus. These are the *Cephalopoda*, or head-footed creatures, whose limbs spring from their heads; the *Pteropoda*, wing-footed, with limbs like wings; *Heteropoda*, strange-footed; and *Gasteropoda*, belly-footed, with one foot extending the whole length of the body. The *Cephalopoda* are the most wonderful, with their ten, eight, or six long slimy horns all starting from their necks, a sack or purse holding the rest of the body, and two fierce eyes looking out. The great Sepia or Cuttle-fish is the modern prince of the tribe. He is shell-less, and not at all an engaging animal; but one of the eight-footed ladies of his race forms, by way of boat-shaped cradle, that loveliest of shells, the Argonauta, Argo, or Paper Nautilus, which all collectors treasure for its delicate beauty. The Argonaut often floats on the Mediterranean and other warm seas; but the story of its rowing with some

of its limbs, and holding up others as sails, is proved to be untrue, for though two of its arms have a membrane extending from them, it always clasps the shell between these, and, in fact, they contain the material that forms that exquisite shell, with its pure wrinkled white texture, just set off by its ridge of brown tubercles.

The only *Cephalopod* shell ever found upon British shores is the little *Spirula* or Ramsborn, like the end of a bishop's pastoral staff. It is sometimes washed on the western coast, though the animal has not been found alive in our seas. The creature is much larger than its shell, which is found within its sack. The shell is divided by pearly plates into different chambers, all connected by a thread passing through the divisions, but their purpose is not known.

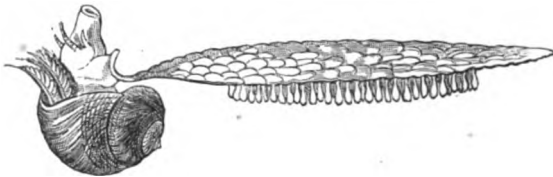
Neither is their object known in that large shell, the *Nautilus Pampilius*, or Chambered *Nautilus*—the large pearly-chambered shell, with a brindling of pale buff outside, that every one has seen. It used to be thought that it sailed like the *Argonaut*, and that the chambers were employed to let in sea-water when it wanted to sink; but no one ever saw a Chamber *Nautilus* sail, and it is believed to creep along, back upwards, at the bottom of the sea, only using the large outer chamber for its abode, and probably forming the rest by just walling up the space behind, when it has grown too narrow for it. Chamber *Nautilus* are found in tropical seas; they are very handsome, and are sometimes carved, and set on stands as cups.

But the great glory of the *Cephalopods* was long before our time. Multitudes of magnificent shells of theirs remain imbedded in the rocks of the upper, secondary, and lower tertiary formation, showing that before the eye of man beheld the waters, they teemed with these grand mollusks. The *Ammonite*, so named from its spiral resembling the ram's horns of Jupiter Ammon, is the parent of the many myths, ancient and modern, of serpents transformed into stone. It is of all sizes, from the size of a coach-wheel to that of a groat, and the varieties are endless. Some have the most exquisitely sculptured ribs, ridges, and tubercles; others have their chambers within divided by foliations more like the fantastic beauty of frostwork than anything else that can be thought of; some still retain their pearly appearance; others have become one with their limestone bed; others, again, have acquired a metallic appearance, most beautiful, whether bronzed or iridescent.

Another curious fossil *Cephalopod* is the *Belemnite*, a cylinder with a sharp point. The upper end where the animal resided is generally broken away, but enough has been left in some instances to show that the creature was an ink-bearing *Cephalopod*; and Dr. Buckland found one with the ink in preservation enough for him to take the owner's portrait in it. Wherever there is blue lias, that is to say, in an oblique line from Whitby to Lyme Regis, there is a fair chance of finding fossil *Cephalopods*; and it would make a collection of shells far more complete, as well as instructive, to add to it as many as possible of these marvels of the more ancient creation.

Of the *Pteropoda*, or wing-footed, there is little of interest to say; but

among the *Heteropoda* is a lovely little shell, sometimes cast upon our shores, and generally found in collections. It is the *Ianthina*. The shell is like that of a snail, and it is often called the Violet Snail; indeed, Linnæus classed it as such; but so far from having the long foot by which the snail draws itself along, this mollusk is absolutely helpless on land, and if cast ashore can only lie and perish. Its foot is in fact a sort of raft, formed of a thin membrane, under which are a multitude of little bubble-like bladders. Under these bladders, the eggs of the *Ianthina* are formed, the youngest always the innermost; and when the outer ones are able to shift for themselves, they break off from the edge of the raft, and set off with a float of bubbles on their own account. The shell is extremely thin and light, and, as well as the raft and whole creature, is of a beautiful violet colour. Hosts upon hosts of these *Ianthinæ* congregate together on the summit of the waves in warmer seas, forming shoals of miles in extent, and they are even said to shine with phosphoric light at night, but this is uncertain.



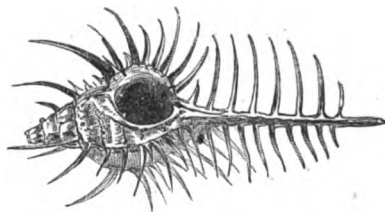
VIOLET SNAIL (*Ianthina*),  
And its inhabitant, and "float" or raft of air vessels.

The *Gasteropoda* are, however, by far the most numerous and well-known class of mollusks. To them belong the great mass of the univalves of Linnæus. The chief characteristic of the mollusk is that it is a long worm-like animal, with a large, muscular, spreading foot attached to the under side of its body, by which it can draw itself along, on earth, trees, rocks, or even on the surface of the water. Most of them live coiled up, and form a spiral shell to contain their coils.

The shells are slender pipes, or curved ribbons rolled up spirally; but as they would have a great deal of useless substance to add to their weight within if all the folds remained complete, the mollusk's body generally destroys the thickness within, and the material passes to the mantle nearer his head, so as continually to lengthen the shell in proportion to its growth. The folds are called the whorls, the apex the spire, the opening is the mouth, and the inner side of the mouth is the pillar formed by the whorls. The creatures have several tentacles, such as the horns of a snail, eyes, mouths with teeth, and lungs. Some have what are called siphons, long retractile trunks, with piercers at the end, with which they bore through the walls of other people's houses and devour the inhabitants. Shells with small round holes in them are generally the empty abode of some poor mollusk, who has in this manner been literally eaten out of house and home. The habitations

of the destroyers may be known by their having a slit at the bottom of their opening, being, in fact, a place where the siphon may be protruded.

Of these are the beautiful race of *Murex*. They are generally large, with an oval mouth, and a sort of beak or channel depending from it, to serve for their siphon's sheath. One of those *Murices* is exactly like a snipe; another, the Thorny Woodcock or Venus's Comb, is covered with rows of



VENUS'S COMB (*Murex Tenuispina*).

long sharp spines, and is said to be very dangerous to the feet of pearl fishers. In fact, the *Murex* is a great architect. He delights in ornamenting his front door with ridges, points, and knobs; but lest these should hurt his own soft person, he lines them with the smoothest enamel, of exquisite colours. And when his growth renders it needful to enlarge his abode, he builds on a new piece, leaving the old ornamented doorway to serve as a stripe to add strength and beauty farther back in his coil. The Royal *Murex* is of a pale brownish tint outside, but ribbed with frilled foliations of indescribable richness, the inner side of each lined with rose-coloured porcelain, like that most exquisitely tinted enamel that covers the whole interior of this palace, and spreads over the pillar lip, whenever it would touch the inhabitant. Some are pure pale pink, like a rose petal, others have their pink exquisitely set off with black marblings; and the Endive Shell, white with black ribs and foliations, is one of the most usual specimens.

The *Murex* has retained the old name that Linnæus carried on from the purple shells of the Tyrians; and in the division of his genera that name has become lost to the true producer of the dye, which is now termed *Purpura*. The Tyrian purple was procured from a mollusk inhabiting a brown marbled shell, with the lowest or body whorl much larger than any of the others, a short spire, a large oval mouth, not beaked, but notched at the base, the outer lip waved and toothed, the pillar lip flattened and hollowed away. Huge heaps of these shells in fragments are found on the shore in various places where the Tyrians are known to have had factories. The English representative of the race is the *Purpura lapillus*, or Dog Whelk, a little shell about an inch long, of a pale drab colour, and wrinkled all over, that may easily be found on rocks covered with seaweed, that are submerged at high water. The animal may be seen peeping



DOG WHELK.  
(*Purpura lapillus*.)

out with a pair of small pale-coloured tentacles, or sometimes the shell is found carefully closed up by its house door, a piece of shell that the owners of most univalve shells carry on their bodies, so placed as entirely to shut the mouth of their abode when they are retired within. It is called the *operculum*, and in the Dog Whelk is of a dark crimson, that looks very rich and handsome when all lustrous with sea-water. Some purple juice is possessed by this animal, and the experiment of dyeing with it has been tried of late years, but it was found only to produce a pale rosy tint, not permanent enough to be useful.

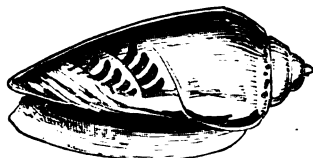
The common Waved Whelk (*Buccinum undatum*), whose mollusk is much eaten by the poor in sea-ports, is a near relation to the *Purpura*. Though without a beak, it has a long siphon, and is a terrible foe to the mussel and the cockle; but in return it is very valuable as an article of food. In one of the earliest of the many sieges of La Rochelle, that in the last days of Charles IX., the Huguenots considered it as an absolutely providential circumstance that they were enabled to sustain the blockade by means of an unusually large number of these shell-fish, which continually appeared on their coast throughout the scarcity.



WAVED WHELK (*Buccinum undatum*).

The *Buccina* are trumpet shells, and with the spire cut off serve to carry sound to a great distance. The Triton's trumpet, often used in artificial rockwork, is the chief of these instrumental shells. It ranks in a genus of its own, well termed *Tritonia*, in honour of those shaggy musicians of Neptune's court who are never depicted without it.

The *Oliva* is a beautiful genus, almost all belonging to warm seas, but



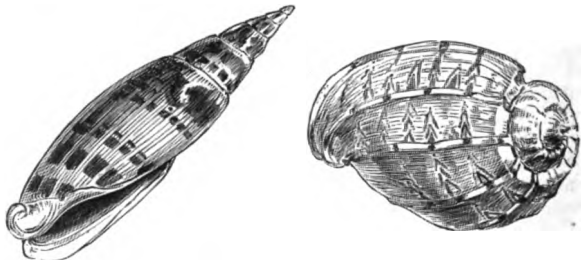
*Oliva Gibbosa*.

often brought home, for the sake of the wonderful polished beauty that is preserved by the animal's spreading his mantle nearly all over his shell. The Olives are all almost exactly similar in form—oval shells, not unlike an olive in shape; the body whorl large and cylindrical, the others scarcely appearing above it; and the spire short and very pointed, with a deep groove round the whorls, into which the mollusk winds a long thread-like appendage.



as if to tie himself to his shell. The mouth is a long narrow slit, open at the bottom, and with the whole length of the pillar lip wrinkled and folded. The different patterns are innumerable and exquisitely beautiful, from the *Oliva porphyrea*, of lovely pale purple, zigzagged over with chestnut markings, down to the tiny *Oliva oryza*, or Rice Olive, which really is, in shape, colour, and all save its polish, exactly like a grain of rice.

More beautiful in form, and scarcely less so in colour, are the Mitres, whose owners can only, however, be compared to the fierce warlike prelates of evil times; for they are terrible mollusks of prey, with extremely long siphons, sharply armed, and said to be poisonous. Their shells have wider mouths than the olive, only three large ridged folds on the pillar lip, and five or six whorls rising in regular gradations one above the other, and sometimes ridged or tubercled. The *Mitra episcopalis*, or Bishop's Mitre, is as smooth as porcelain, and perfectly white, except where dotted with large orange-coloured spots; but the *Mitra Papalis*, a smaller and less polished



BISHOP'S MITRE (*Mitra episcopalis*).

HARP SHELL (*Harpa ventricosa*).

shell, has really such crown-like knobs around its three principal whorls as quite to recall the form of the tiara, or triple crown surmounting the mitre.

Many curious resemblances have been traced between shells and things on earth or sky. The *Volutæ*, heavy thick shells, with three folds on the pillar lip, and a spire rounded off into a knob, have among them a species marked with lines like lightning; another, called *Vexillum*, or Banner, with orange stripes a good deal like those of the American flag; and a third, of a pale flesh colour, marked with black lines and dots so like music that it is always known as the Music Shell, or *Voluta musica*.

Nor is a harp wanting. The *Harpa* genus inhabit all hot seas, and, oddly enough, contain an animal whose head is said to be like a lyre. It is provided with an enormous foot, so large that it does not attempt to draw it within the shell, though the shell itself has a very large opening—a great contrast to the narrow slit of the olives. The shell is a very lovely one, firm, strong, and polished, though delicate, and provided at intervals, along its large swelling body whorl, with ribs delicately shaded with fawn, and the space between them filled up with a morone pattern of scollops upon a grey ground; the pillar lip is marked with two broad dashes of rich chestnut

colour, and the spire is decorated with an exquisite crown formed by the points of all the ribs coming close together. The *Harpa ventricosa* is the most common species, and to me it seems the most beautiful, its patterns are so lovely; but the Double-stringed Harp, with ribs close together, is the great prize and glory of collectors.

A large foot, too, is possessed by the owner of the *Cassia*, or Helmet Shell, but he puts it out at a narrow opening, and spreads a thick coat of shining enamel back over the surface of his already stout and solid shell wherever the said foot would touch it on the outside. Helmet Shells are often to be seen, very shabby and dirty, on the tops of old wardrobes and in niches of staircases; for there seems to be no end to them—nothing short of crushing would break one—and so they remain long after air and exposure have dimmed the bright crimson enamelled vizor, wrinkled with black or white, that led to their dusty doom. Many, however, meet with a very different fate. Their great thickness is owing to their having a double



HELMET SHELL (*Cassia*.)

shelly coat, the upper one pale, the lower dark crimson in hue; and it is from these that most of those exquisite cameos are carved which have so long been one of the most graceful works done at Rome. The outer white coating is so delicately carved away as to form the figure upon the polished round of the ruddy under covering; and thus the *Cassia rubra*, or Red Helmet, has contributed as much to ornament as the pearl oyster, and even more to art.

To go through every genus even of the more accessible shells would be impossible in a paper of this kind, and I am only mentioning those most likely to catch your eye in collections, or to fall in your way on the coast. The *Scaloria*, or Wentle-trap, is interesting in both ways. The English name is a fine specimen of corruption, being, in fact, the German *Wendel-treppe*, or Winding Stair, so called from the regular spiral in which the hollow decreasing tube containing the animal is wound. A rib or hem projects round the aperture; and as the shell is regularly enlarged and a fresh hem always added, the old ones remain and make a regular row of bars from base to summit of the shell. The largest species, *Scaloria pretiosa*, the Wentle-trap *par excellence*, is wound so loosely that the coils of the spiral do not join together; and it seems to be only held together by its ridges; and all the lesser kinds, some of which are to be picked up on our own coasts, are rather unkindly stigmatized as false Wentle-traps, because their folds are not thus separated.

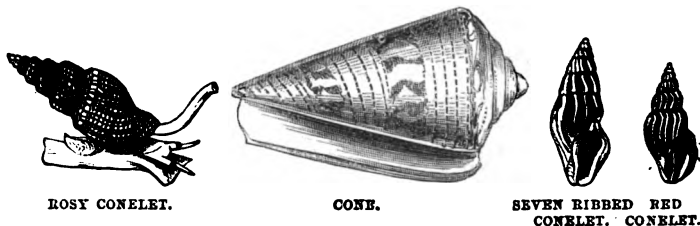


*Scaloria*.

These creatures have no siphon, and are not carnivorous. The shells have perfectly round apertures, without the slit for the ferocious trunk to be protruded; and though they have very curious mouths, with no lack of teeth, the purpose is for preying on weeds. Another very beautiful Stair-case Shell is the *Solarium perspectivum*, which is sometimes even set as a

brooch. Look at the upper side of the shell, and you see a smooth cone of large circumference in proportion to its height, and with the angle of the apex therefore extremely obtuse, the colour pale grey, marked with a shaded spiral brown or buff hue, the only mark, in truth, of the whorls. Turn it, and look at the under side; you then see that the tube forming the shell is four-sided and four-angled, and is so coiled as to leave a large circular well in the middle, in this species, with the inner margin cut into little brown notches, so that it is really a good deal like a winding and enlarging staircase. Several shells have holes after this pattern, though not so large, left in the middle of their coil. You may understand the principle of construction if you ever remember committing the misdeed that so angers nursemaids, of poking up the centre of their neat spiral rolls of tape, so as to make a cone on one side, a hollow on the other. This hollow is called in a shell the *umbilicus*.

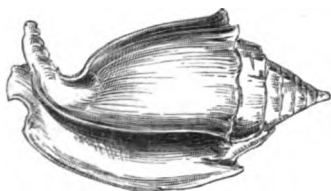
We have not, however, done with the mollusks of prey; but the division on which we now enter have not the sharp pointed siphon, though their



muzzle is elongated, to contain a long tongue armed with teeth, hard, horny, and shaped just like crochet needles. An immense genus called *Conus* is the chief of this group. The shells of this genus have a large body whorl, widest at the top, and smoothly tapering to the base, with a long narrow mouth, and all the upper whorls scarcely allowed to appear above the top of the body whorl; so that some species will absolutely stand upon their flat spires, and, thus reversed, their body whorl forms exactly that geometric figure from which they take their name. They are of solid beautiful enamel outside; but if you can get a conic section made for you, you will see that, within, the whorls have been reduced to the thinnest and lightest partitions possible; so that the Cone has a palace of marble walls outside, and within of the thinnest plaster—a necessary arrangement for one who carries his house on his back amid rocks and storms. I say marble wittingly, for the chief type of this genus is the *Conus marmoreus*, or Marble Cone, which is covered with a beautiful mottling of pure white and deep brown, almost black, and has a knobbed or tubercled spire. The Cone most thought of by collectors is the *Conus gloria maris*, or Glory of the Sea, or, as some Irish curiosity dealers call it, Glory of Mary—a large handsome shell, clouded with white and orange, and so rare that enormous sums have been given for a

specimen, and though now less uncommon, it is still costly. The markings of Cones are often exquisite, but they are none of them inhabitants of our cold seas: tropical suns are needed for such colouring.

We pass on to a beak-bearing race, who are nevertheless eaters of weed, and who not only possess eyes on their tentacula, but eyes, we are told, capable of expression. The animals of the *Strombus* race crawl in search of their food, and therefore the foot is large, and it bears on it a curious horned *operculum*. At first the shell is like a cone, only that the spire is more produced, and the pillar lip less straight; but as the animal grows older the upper surface of its great foot deposits an enormous development of the outer lip, which spreads into a wing, rough and brown outside, but inside smoothly enamelled and beautifully coloured. The Giant *Strombus*, often found under the same dusty circumstances as the Helmet, comes from the West India Seas, and is outside pale drab, inside of the lovely pure pink peculiar to shells and roses: indeed, so profuse are its glands for depositing enamel, that it sometimes forms pink pearls. Much smaller, but very

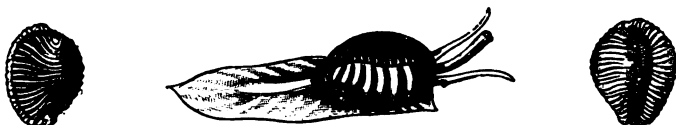


DIANA'S EAR (*Strombus auris Diana*.)

beautiful, is *Strombus auris Diana*, or Diana's Ear, which has a wing pointing upwards into a finger, and lined with a most exquisite soft orange vermillion. A few species are sometimes found on English coasts, namely, the brown-marbled *Strombus Canarium*, or Partridge Shell, and *S. succinctus*, which is banded with white, and has not much of a lip. But the localities of shells can seldom be fixed as distinctly as those of land animals. The ancients never made a greater mistake than in speaking of the *dissociabilis oceanus*, for its denizens may be anywhere in its expanse. The real separation between the kinds are between those dwellers in cold waters who are kept apart by warm currents that they do not pass, so that the chief differences are between the mollusca of the north and south temperate zones. All the shells of the tropics, whether in the Atlantic or Pacific, are much the same, and no brightly-coloured ones live far down in the water beyond the sun's influence; for though these lovely porcelain paintings and enamellings are absolutely invisible, lost between the body of the mollusk and the shell, yet they are the effect of light. Of course the fresh-water and land shells, which we shall come to in time, follow the same rules of distribution as other land lubbers. Almost identical in character with the *Strombi*, are the *Pterocera*, whose lip develops into a claw armed with long fingers.

The six-fingered *Pterocera chiragra*, or Savage Claw, is the most frequent. The Scorpion is the most beautiful, having seven talons to a purple and white wrinkled lip. Both these genera have a long fossil ancestry; indeed, it is said that there are more extinct than recent species. A third genus, closely related, has lately been severed from the rest, by the title of *Chenopus*, or Goosefoot, from the claws taking the form of a birds' web foot. We have a little native, the *Chenopus pes pelicani*, or Pelican's-foot, a small drab-coloured shell.

Another class of shells given to altering in form as they grow older, though in a very different manner, are the *Cypræa*, or Cowries; those semi-globular spotted porcelain Tiger Shells, those boiled chicken-like money Cowries that are the current coin of Negroland, those ribbed little pink peas of our own coasts. Nay, their Portuguese name of *Porcella*, or Little Pig, is the derivation of porcelain, the earthenware most approaching them in beauty of texture. When first hatched, and even after they have attained a considerable size, the *Cypræa* have a shell a good deal like an olive, only thinner in texture, more swelling, with the spire more produced; no plaits on the pillar lip; and a wider mouth, out of which a large foot protrudes,



EUROPEAN COWRY (*Cypræa Europæa*).

extending at the sides into two lobes, capable of turning back and enfold-  
ing the entire shell, and, moreover, filled with glands of calcareous matter,  
which they continually deposit, so that gradually the outer lip is turned  
over, the mouth narrowed, a row of regular wrinkles or teeth grow up on  
either side of it, a coating of enamel is laid down all over the outer whorl  
of the shell, and gradually covers the spire; so that in some species it is not  
easy to believe there has ever been a spire at all; in others there is only a  
little indentation. If the outer coat of enamel be destroyed by acid, the  
under coat may be seen, often of a deep purple, and buyers are sometimes  
taken in to fancy these a new sort. This is oftenest done with the Nutmeg  
and Serpent's-head Cowries, as being both very common and very stout.  
The *Cypræa pediculus* is our only native, and has a beautiful little brilliantly  
painted animal with long horns; but this is a specially tropical genus, and  
has all the glory of torrid climes. Thence come the Tigers, with their  
white black-spotted ground, and the orange line marking the junction of the  
lobes of their mantle; the great Orange Cowry, the favourite ornament of  
princes in the South Sea Isles; the Argus, covered with rings like eyes; the  
Moor, deep brown dappled with chestnut; the Lynx, with two black eye-like  
spots behind and before—ininitely greater and more beautiful varieties than  
we have here space to hint at.

The delicate gradations of Nature are curiously marked, for the next following genus, the *Ovula*, is almost the *Cypræa*, only it never has teeth on more than *one* side. The chief *Ovula* is the *O. angulosa*, a curious freakish likeness of a poached egg, milky white without, and within of orange,

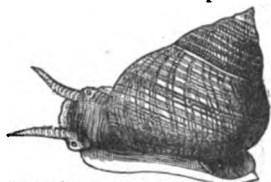


WEAVER'S SHUTTLE (*Birostra volva*).

exactly the colour of the yolk of an egg. This is much used in the South Sea Islands to decorate canoes and idol temples, from the roofs of which long strings of these eggs may be seen suspended. The two extremities beginning to develop in the *Ovula* are drawn out to a considerable length in the *Birostra volva*, or Weaver's Shuttle.

But we must pass on. The *Cerithium*—instead of being spireless like the *Volva*, is all spire—is sometimes called the Pagoda Shell, from the tubercles that decorate its regularly ascending whorls, sometimes Hercules' Club, from its knottiness. A great deal of the calcareous soil round Paris is formed of crumbling remains of the Giant *Cerithium*, of which one single broken recent specimen was bought by the great French naturalist Lamarck, in 1810, at Dunkirk, from an English sailor, who stated that he had fished it up among some coral reefs on the coast of New Holland. No other has ever appeared; but this is not the only species extinct in our hemisphere and alive in Australia. Another *Cerithium* sorely puzzled Sir Emerson Tennent by, as it appeared, singing to him like an *Æolian* harp, in a bay in Ceylon, and whether the mollusk, the water, or the wind made the sound, has never yet been known.

Our own little *Littorina*, or Periwinkle, is well known to the poor as food, and to aquarium lovers as a mower, who with his scythe-like tongue removes their superfluous vegetation. He is connected with very handsome shells, marbled with green and white, or black and white, and containing a lining of most beautiful pearl, in one species tinged with a soft sunset gold that causes it to be called *Chrysostoma*, or Golden Mouth, and is quite unique in beauty.



PERIWINKLE (*Littorina vulgaris*)

These are creepers on the shore, but the next to be noticed show by their shells that they have no such calcareous sustenance as seaweed, or even seawater. They are weak thin shells called *Paludina*, from *palus*, a lake; nevertheless, their ancestors have been lasting enough, for it is they that form the chief ornament of the beautiful Purbeck marble. You may find *Paludina* creeping on the reeds by the river-sides—little brown homely-looking things,

like English birds, and yet some have a peculiarly refined grace, from the taper elegance of their whorls. The fresh-water shells are not, however, always so sober; some of the tropical ones take bright colours.



*Paludina.*

Most of these *Gasteropods* are worm-like, and rejoice in coiling up their spires neatly; but the *Vermetus* keeps his tube in an untidy semi-coiled state, and, fastening it upon some other shell's back, sometimes does not twist it at all. And the *Phorus* or Carrier is a most willing supporter. Its shell is in form like a rough and ill-made *Solarium* or Staircase, but it loves to strengthen its walls by working in small shells or stones, which are caught in its shelly slime ere it hardens, and thus form part of the fabric. It has very few folds to its spire, and thus is a step to the *Trochila*, or St. Peter's Boat, an odd-looking shell, looking undecided whether to be a spiral or a mere Limpet—a cap corrugated outside, with a spiral line passing round it, and within with an opening, the lip of which forms a sort of seat. The *Calyptrae* have not even this attempt at a spire, but are mere irregular

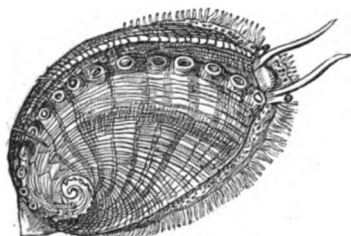


CUP AND SAUCER  
LIMPET (*Calyp-  
trae*).

caps, with a broken attempt at a fold within, less pretty than the *Crucibula*, which are absolute cups and saucers, allowing for the saucer being much deeper than its little cup. The cups disappear in the *Pileopsis*, or Hungarian Bonnet, a beautiful little shell turned over at the apex like a Cornucopia or Phrygian cap. This and all its connections have a strong impression, like a horse-shoe, marked within the shell. In beauty they must yield to the *Haliotis*, or Venus Ear,



HUNGARIAN BONNET  
(*Pileopsis Ungaricus*).

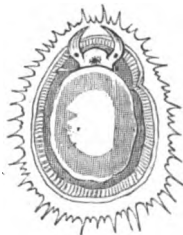


SEA EAR (*Ormer*).

that beautiful ear-like shell, lined with a succession of glistening pearly rainbows, which is to be found in most parts of the world, but not nearer England than the Channel Isles. It has a row of circular windows beginning from its indication of a spire, the upper ones stopped up, and only the six or eight near the outside open, to allow the animal to put out its tentacula. Likenesses in the animal have caused to be ranked near these the Nerite family, whose little yellow representative is one of the dearest to children upon the sea shore, and whose more ornamental specimens, especially the Bleeding Tooth, are to be found in every

collection. They are very stout solid shells, whorled, with a flat spire almost lost, and their mouths semi-circular.

From them we go on to the *Fissurella*, or Keyhole Limpet, a pretty ribbed little cup, oblong, and always with a hole at the apex. The Common Limpet, or *Patella*, is one of our first acquaintances, looking like crust

KEYHOLE LIMPET (*Fissurella*).COMMON LIMPET (*Patella*).

upon the rocks, with his brown star-shaped shell, and holding on so much too tight for us to detach him. His lining is prettily tinted with green, and his foreign kindred are often extremely splendid, with a dark polished spot like an enormous eye, or with red metallic lustre. And we have another beauty, a tiny, delicate, pale horn-coloured shell, with three dotted lines of the most exquisite ultramarine in the world coming down from the apex, and giving it the name of the Blue-eyed or Blue-rayed Limpet.

Limpets seldom change their places after their birth, no more do the *Chitons*, which used to be the main body of the multivalves of Linnæus. Dull slug-like animals they are, with neither eyes nor tentacula, and with a slow fleshy disk of a foot, that serves them for slight changes of place on their rock; but they are covered with a very curious coat of mail, consisting of separate plates imbricated together like the pieces in a Chinese puzzle, and retained by an elastic frame like India rubber. There are a great many of them, and some fossil.

After these come a curious race of mollusks, whose lungs are protected by a fold in the mantle, but with whom a shell is by no means a decided matter of necessity. The *Bulla* stands first, a bubble sort of shell, a great round whorl, but no spire, and the shell sometimes variegated with brown, sometimes beautifully striped with bands of white, pink, and black. This mollusk has a gizzard, consisting of two bits of hard shell held together by a strong leathery muscle. But the *Dolabella* has no external shell, only a curious white plate, curved like a Greek helmet, and the *Apsylia*, or Sea Slug, has no shell at all; and though, with all her kindred, she indulges in the most eccentric varieties of branched lungs of every sort of ornamental colour and pattern, growing out of her back, she is no object to a collector, who could at best only bottle her ladyship in spirits.

URN BUBBLE  
SHELL (*Bulla  
hydalis*).



It is a relief to pass to the *Helix*, or Snail, a sensible animal, with horns out of sight, a locomotive foot, and a very good



SNAIL.

mouth and tongue of his own, wanting, in fact, none of the properties of a rightly endowed mollusk, except a house door or *operculum*, and that he is clever enough to form for himself, *pro tem.*, when he goes to sleep in an old tool-house, or the bottom of a flower-pot, for the winter. The *Helices* are all land shells, and are to be found in immense numbers all over the world. They are very good subjects for a sort of exclusive collection, since they are much more accessible than sea shells can ever be, and may be gathered for oneself either in England or on a continental tour. Their shells are less thick than those of sea mollusks, who have more lime at their disposal; indeed, there are some which build a high turreted shell, whose top storeys dry up and tumble off, so that they always live in a ruin. I think most sorts are at their finest in a chalk or limestone country, where, I suppose, the plants that form their food imbibe more calcareous matter. There are many subdivisions of the *Helix* tribe, according to the form of the animal or

shell, and a fair number may be found in England, beginning from the great *Helix pomatia*, or Edible Snail, which is always to be found near old Roman villas, and is therefore supposed to have been introduced by the proconsuls, not contented with the British oyster. Then, next largest, is the native *Helix vulgaris*; and most ornamental are the varieties of the *Helix nemorosa*, sometimes yellow, sometimes with one purple band, sometimes with many, on a white or yellow ground, and a very elegant little inhabitant, whose motions with his flexible head and wise horns are really most graceful and interesting to watch. It is satisfactory that our snails are not on so large a scale as the great white and purple-striped *Bulimus* of South Africa, which feasts upon the mangrove trees. One can excuse their being even as large as the beautiful Ceylon Snails, whose shells are often brought home, handsomely banded with white and brown, and with shining deep red mouths. The land shells, and their land shellless mollusca, otherwise termed Slugs, complete the measure of the *Gasteropods*, the largest race of the shell-bearers.

The next division are the *ACEPHALES*, or headless creatures, with neither head nor eyes, but a mouth hidden in the mantle, and supplied by a sort of fringe of filaments, which imbibe food from the sea-water. Some are locomotive; most, however, are stationary. Their shells are almost always in two separate pieces, united by a strong ligament, and generally possessing a beautifully toothed hinge. They are, taken broadly, the bivalves of *Linnaeus*; though the first family among them, the *Pholades*, were among his

multivalves, in honour of the very complex construction of the two white valves in which they enclose themselves, as their one straight foot bores its way into the rock and stone. Another less harmless borer, with far less shell, only a little shield, is the *Teredo*, or Ship Worm, who can only be kept out of the timbers of vessels by his dislike to rust. Others, instead of boring, form for their long tube-like foot a case compacted of sand, looking like macaroni; and the beautiful *Aspergillum*, or Watering-pot Shell, though a tiny white bivalve at first, forms a long slender shelly tube, finished off by a rose, frilled and perforated, just like that of a watering-pot. These are all to be found in the Red Sea or the Pacific.

Nearer home, among the borers into sand, are our own *Solens*, or Razor Shells, who heave themselves along by their great siphon or foot. The

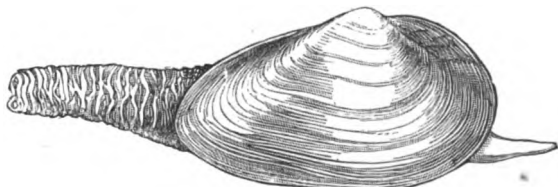


SABRE RAZOR SHELL (*Solen ensis*).



PAD RAZOR SHELL (*Solen siliqua*),  
Animal within it.

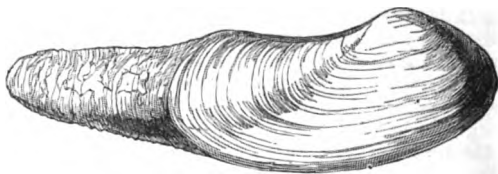
*Machera*, their near relation, has a very pretty shell—dark purple with white rays. The *Mya* is an English shell you may find washed up from the



COMMON GAPER SHELL (*Mya arenaria*).

sandy holes in which it lives. It looks as if it grew on a stem, for a wrinkled epidermis or skin, forming a sheath to its two united siphons, seems to grow out of the gaping hinder part of the shell.

But it is hardly worth while to say as much of these shells as of their predecessors. The next class, which have two lengthened siphons, can move

BLUNT GAPEE (*Mya truncata*).

pretty freely, and generally live in the sand. To them belong the delicate *Tellina*—little pink shells, like scattered petals of fairy roses, to be found

BLUNT TELLEN (*Tellina crassa*).PORCELAIN TELLEN (*Tellina tenuis*).

on our shores, and the beautiful Sunset Tellen, with alternate rays of soft sulphur and red, just like an evening sky. And above all, here is the great family of *Venus*—beautiful rounded smooth shells, closing resolutely, some



BANDED VENUS SHELL.

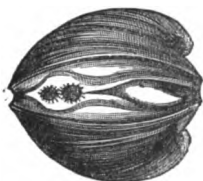


WART VENUS SHELL.

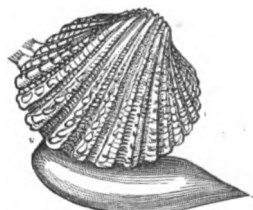
of brilliantly tinted enamel, some beautifully chiselled and frilled, their sculpture always following the line of the shell.

This is what distinguishes the *Venus* family from the other equally important bivalve family of *Cardium* or Cockle, whose sculpture in lines, folds, and ribs radiates from the hinge of the shell, and goes across like a fan, just as that of *Venus* goes round like a flounce. There are many fossil *Cardia* in the chalk, very handsomely ribbed, with little tubercles or thorns on their ribs; and some of the recent ones are exquisite, such as the delicate *Cardium costatum*, swelling like a fan of white paper, or the Strawberry Cockle, with red knobs on every rib. The whole *Cardium* race, as its name testifies, are so formed that, looked at sideways, a perfect heart is formed

by their two valves, with the opening in the centre. There are many subdivisions of the genera according to the form of the shell, whether the two valves are completely orbicular, or whether their heart-shaped end is flat.



HEART COCKLE.

RED NOSE COCKLE (*Cardium rusticum*).

The same heart shape distinguishes the next family, consisting of much larger and more irregular shells—namely, the *Chamæ*, or Clams—those enormous shells whose interior rivals in snowy whiteness the most exquisite Parian porcelain, and whose exterior is slightly flecked with crimson spots on the broad handsome folds, and tinged with sulphur along the teeth of the opening for its siphon. This is the *Tridacna hippopus*, the handsomest of the race, and sometimes used as a scoop to take up water at baptisms. The *Tridacna gigas*—far less beautiful—grows however to sizes better befitting the fossil than the present world, can snap a cable in two by closing its valves, and serve for a dinner to a ship's company. One of these shells is set into a pillar to serve as a font at the church of St. Sulpice at Paris.

There are few fresh-water bivalves; but the single family of *Unio* inhabits

PAINTER'S RIVER MUSSEL (*Unio pictorum*).

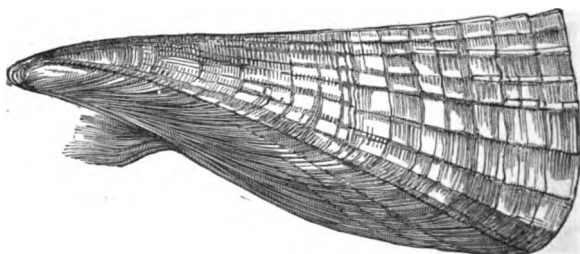
SWAN MUSSEL.

streams and rivers, and may be found in Britain—great shells, covered with an epidermis of the colour of river weed, with the fleshy siphon of the mollusk protruding, and a lining of bluish nacre. The *Anodon cygneus* is the

commonest English one: the mollusk is much eaten by herons and crows, and the blue nacre sometimes affords small dull pearls, which no one seems to have prized since the time of Julius Cæsar until the present time, when Scotch pearls have become much sought after.

A few other mollusks can live in either salt or fresh water, and among them is the *Dreissena*, a mollusk furnished with a small byssus or silky beard, where-with it fastens itself to the timbers of ships; and in this manner it has been conveyed to our own rivers, and become common enough in the Thames to be reckoned as one of our indigenous mollusca. It is very near akin to the dark blue *Mytilus* or Mussel, that we all know so well, fastened in multitudes to rocks, piers of bridges, old timbers, &c., capable of so beautiful a purple polish, and furnishing food to so many poor—ay, and I fancy to a good many rich, for it is said that much of the oyster sauce eaten in London is made of mussels.

Here we have parted from locomotive bivalves with a siphon to walk upon. See, the Mussel shuts up tight, without any opening for such an appendage to protrude from, and it is moreover anchored by its cable of silk. This is the case with the ensuing genera, of which the first, the *Avicula*, or Little Bird, is so called from the resemblance of the outline of its most regular species to a swallow. A large, rude, irregularly formed species, sometimes called *Avicula Margaritifera*, sometimes separated as the genus *Meleagrina*, is the true Pearl Shell, the Pearl Oyster of the Persian Gulf, which forms its jewels by coating with its soft nacre any extraneous substance that may have entered the shell.



*Pinna Pectinata.*

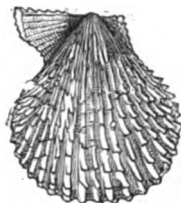
This family take very eccentric shapes, the queerest of all being the *Malleus*, or Hammer, a rude, irregularly made sort of letter T in form, with a small blue nacreous bed in the centre for the mollusk, who probably uses the superfluous length beyond as a channel down which currents of his food may flow to reach his mouth. "The Anchored Pinna" is of the same family—a thin, brown, horny-looking shell, found chiefly in cool seas, and producing the very king of marine beards, a noble byssus of dark brown silk, which in Sicily is capable of being woven into gloves and other small matters of curiosity.

The most curious resemblance to the forms of art to be found among the bivalves is presented by the shells of the Ark tribe, distinguished by having a long horizontal hinge furnished with tiny teeth. The *Arca Noë*, when stripped of its mossy epidermis, is so exactly like the hull of a man-of-war that it might almost be taken as a model.



NOAH'S ARK  
(*Arca tetragona*).

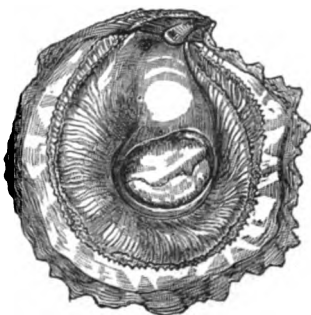
An interesting race of English shells are the *Pecten* or Scallops. One valve is perfectly flat, the other orbed, and rayed longitudinally with beautiful markings in all shades of red, purple, orange, and white. The *Pecten Jacobææ* is the Scallop of St. James brought home by pilgrims, and often seen in coats of arms. Lately, however, the capabilities of the *Avicula Margaritifera* for being sculptured have led to its being the shell which the peasants of Bethlehem carve with rude figures, and sell to the visitors to that holy spot. But it is to the connection of St. James with the Scallop—originally gathered on the Spanish coast, on the way to his shrine at Compostella—that the little London boys' habit of erecting a grotto of oyster shells is due, since it was once, no doubt, intended to represent his shrine.



VARIABLE SCALLOP  
(*Pecten varius*).

The connections of the *Pecten* branch out into the beautiful *Spondylus*, foliated and thorned all over the ribs of its upper valve, with the lower tight grown to a rock; and then to the *Anomia*, whose very name is in Greek an allusion to its shapelessness, a thin transparent shell, whose flat lower valve, with a round hole through it, is fastened tight down to some parasite-enduring shell. The hole has a stopper or *operculum*, which holds hard to the supporter at one hand, and on the other grows from the chief interior muscle of the animal. The *Anomia* is very thin; but the *Placuna*, its Chinese relative, is almost semi-transparent, and grows to so large a size that it is even used by the poorer Chinese to glaze their windows.

They are the next link to the Oysters, those rude pearl-lined shells that contain the mollusk for which England was famous even under the Roman empire. But of the statistics of oyster-beds our readers have no desire to hear at present, though it may be interesting to them to know that London stands on great masses of the fossil oyster-beds of elder years. The Oysters and their subdivisions are the very last of the great class of ACEPHALÆ, from which we proceed to the last division of mollusca, the *Brachiopoda*, or Arm-footed; not that they have a foot, but cilia or arms stretching from their mantle are the derivation of



COMMON OYSTER (*Ostrea edulis*).

their name. They generally have bivalve shells, with a hole through the upper valve, and a muscle coming out through it to anchor them to the rock. They are very old-world beings: like the *Cephalopoda*, their reign was in past ages; only a few linger on the surface of the earth, as if to serve as keys to their dead forefathers, of whom there are many more species buried in the soil than there are of existing representatives.



LAMP SHELL.

The *Terebratula*, or Lamp Shell, is one of these. It is so called because its upper valve projects beyond the lower, and is perforated just like a classical lamp. Where the wick would come, out protruded its strong muscle, by which it rode at anchor all along the shores of the seas that are now chalk hills, in which multitudes may be found imbedded. Some of these shells, recent as well as fossil, contain curious and regularly curved processes of shelly matter to which the animal was attached, very unlike the ordinarily empty bivalves of the *ACEPHALA*. The very premier of the whole race, the existing animal whose genealogy is the very oldest of all on this earth, is the *Lingula*, a little spoon-shaped shell with a *Brachiopod* inhabitant. His remains, found in the lowest beds of the Silurian strata, are the very first dawnings of animal existence on the earth, the earliest indication of any organic life in our globe. Thenceforth the remains of living beings thicken on the geologist; but the *Lingula*, the pioneer of life, never fails in every era, and still it lives, deep burrowing in beds of sand, the humblest, if the longest descended, of all the organic existences of creation.

We hope we have said enough to show that Conchology may be a most interesting study, and in its union with Palæontology, it will present ever new and ever old interests.

As to the means of study, a book giving general ideas should first be read. Sowerby's "Popular History of Mollusca," one of Lovell Reeves's pretty Natural History series, is a fair one. So also is Agnes Catlow's "Conchology." Or there are two large quarto volumes of Reeves's, and a beautiful "*Manuel Conchologique*," par L. C. Chenu, which we have here largely used, and which contains fossil as well as recent shells; the illustrations beautiful, and the price only 25 francs.

After general notions of classification are gained, the special branches come under consideration. Turton's is the largest book of exclusively British shells, which gives figures of all. Another "British Conchology," by Miss Roberts, is in Lovell Reeves's list. "Common Shells of the Sea Shore," by the Rev. J. G. Wood, will be helpful on a sea-side visit; and the S. P. C. K. has such another by Gosse. Fossils may be found in the volume of Geology in "Bohn's Library," now in the hands of Messrs. Bell and Daldy. If you confine yourself to some one genus, you might be able to purchase one of Lovell Reeves's splendid monographs, with figures of all the species; but in general the wisest way, which best feeds the intelligence, is to study the general subject as much as possible from books fairly within the attainment of your purse, collect what you have some chance of collecting with your own hands (complete collections sorted at scientific shops are miserable

encumbrances and hindrances), learn to classify and understand the general position of your specimens; and then, when the opportunity offers of consulting a grand book, or visiting a museum, you will know how and where to look and learn, you will carry home names to your own specimens needing them, and you will see sights, not as gape-seed, but as a study.

And it will be your own fault if the loveliness and adaptation of these palaces of the waters do not aid you to think of the beneficence of their Maker.

## SEAWEEDS.

There was a time, and not very long ago, when Seaweeds were the most despised of vegetable life, when professors of botany ignored them, tossed them aside as children's playthings, and only mentioned them as lowest in the scale of Creation, if not absolutely noxious.

The epicure found out, however, that one seaweed made an appetizing sauce: the Englishman calls it *laver*, the Irishman *sloke*, the Scotchman *slaak*, and the scientific man *Porphyra*; but all agree in dressing it with lemon-juice, spices, and butter, and like it well.

The poorer class of Highlanders and Irish eat the seaweed called *Dulse*, both as food and medicine; for, like all plants, seaweed is made up of millions of small *sacs* or cells containing the varied substances it draws from sea-water and sea-air, one of the most important of which is iodine, a specific in all cases of scorbutic and glandular affections.

There is a common saying in Scotland, "He who eats of the dulse of Guerdie and drinks of the wells of Kildingie will escape all maladies except black death."

They prepare it thus in Ireland: First they wash it well in fresh water, and expose it to dry, when it gives out a white powdery substance, which is sweet and palatable, and covers the whole plant. Then they pack it in casks and keep it from the air; and thus preserved, it is ready to be eaten either in this state, with fish and butter, or, according to the practice of richer people, boiled in milk and mixed with a little flour of rye. This powdery substance is *mannite*, abundant on many of our seaweeds.

Cattle are very fond of dulse, and sheep will wander away dangerously far at low water in search of it. From this circumstance they call it in Norway *sonsoell*, or sheeps'-weed.

The common brown seaweed fringing the rocks from highest to lowest tide is eaten with relish by Highland cows.

The most of us know how excellent for invalids is jelly made from the *carrageen* or Irish moss. It abounds on all our coasts as *Chondrus Crispus* — sold at one time as high as 2s. 6d. per lb., because it was a fashionable dish for invalids. No seaweed, however, is more useful and interesting than the very brown common seaweed, that is passed by as useless for the album, and of no beauty whatever; and yet its fructification is of the highest order,



and its importance to the agriculturist so great as to render it very precious in the Channel Islands, Scotland, and Ireland.

The basis of all our classification in Natural History is the fructification. The Creator Himself has so outlined His plan: "The herb yielding seed, and the fruit tree yielding fruit after its kind, whose seed is in itself after its kind." The trees of the forest, the flowers of the field, are not more surely classed by their blossoms and their fruit than are these pretty lowly seaweeds. It makes all the difference too in a mounted specimen—*Placodium* for instance—whether it be in fruit or not.

Not only has a seaweed fruit, but on many species there are two kinds of fructification, and on one at least, the *Fucus*, is recognized the perfect form of vegetable life. You will discover the ordinary forms of fruit with a simple lens, but very little of their great beauty and delicate texture without a microscope. It may be scarcely credible that a most abundant, dark, unlovely weed, called *Polysiphonia*, is full of little berries, called *ceramidia*, urn-shaped, transparent, as if fashioned of delicate net-work, containing oblong brown or crimson seeds, whilst another plant close by it bears long pods containing masses of four seeds, or spores, called *tetraspores*.

If you have a microscope and examine your seaweed intelligently, always take a very small piece and place it on a glass slide with a drop of water, and a thin bit of glass over that again, else you will not be able to see what I describe. Use a low power—a 2-inch object-glass is the best; then, if you possess higher powers, use them one by one: the more you investigate the more you will find to astonish and delight you. Minute and unsuspected forms of *Algae* or seaweed parasitic on the larger ones, and so wholly microscopic as to be classed apart, and called *Diatomaceæ*, have long been a source of wonder and deep interest to scientific observers: the variety in form, the beauty of their markings it is impossible to conceive without having seen them.

We dabble in the cool, clear tide-pools, and scarcely know what we take up: there is a world of life in each. The speckled prawn is balancing himself, and waving to and fro his sensitive feelers, springing away under the rich foliage that conceals his hiding-place; and the small blenny darts like a lightning-flash from cranny to crevice, the fear and the dread of man upon it. On the green *Ulva* creeps the lovely little slug—a bright green spotted with white—called *Acteon viridis*, and on darker seaweeds the great purplish sea-hare. Sea-spiders lurk amid the Coralline; and as we gather a bunch of seaweed, we shake out dozens of a pretty little snail called *Rissoa*, besides gathering, if we please, bright yellow nerits, the commonest sea-snail of our coast. All these force themselves on the notice of the seaweed gatherer, as we scramble over the rocks, and pause to consider where we shall begin.

I advise taking a little of everything—not much, for seaweeds soon spoil in waiting to be mounted—and naming each specimen as they are decided by reference to the following Synopsis of Tribes; for, however much the indolent mind may dislike scientific names and classification, it will be found quite impossible to learn any part of Creation without some effort towards both; and the pleasure of collecting is increased tenfold by a knowledge of

the order and the rank each little weed holds in its tiny tide-pool. There is, first of all, the division of colour—red, orange, and green; within this, again, the rising scale of honour in the manner of reproduction, from the simplicity of the green seaweeds to the complexity of the lately-known *Fucus*.

The number of *genera*, or groups containing varied individuals, is 105; the species as yet detected on the British coast may be about 380. Of these the green seaweeds abound near high-water mark, and have little variety, with the exception of *Cladophoræ*, which contain twenty species: they are very beautiful when properly laid out in a seaweed album.

### SYNOPSIS OF SEAWEED TRIBES.

They are divided into three great classes—the OLIVE, the RED, and the GREEN SEAWEEDS.

#### OLIVE GREEN, OR MELANOSPERMEÆ.

(Marine plants of an olive green or olive brown colour.)

*Fructification*.—*Monæcious* or *diæcious*. Spores either external or contained, singly or in groups, in proper conceptacles. *Antheridia* (transparent cells) with active small bodies moving by means of vibratile hairs or *cilia*.

- |   |  |                         |
|---|--|-------------------------|
| 1 | { Seaweeds of an olive brown or blackish-green colour                          | } <i>Fucaceæ</i> .      |
|   | { Seaweeds of an olive green or yellowish-green colour                         |                         |
| 2 | { Fronds membranaceous, inarticulate.  | }                       |
|   | { Fronds articulate.   |                         |
| 3 | { Spores external, borne on jointed filaments                                  | } <i>Sporochnaceæ</i> . |
|   | { Spores on the surface of the frond   |                         |
| 4 | { Spores covering the whole of the frond, or in ill-defined patches            | } <i>Laminariaceæ</i> . |
|   | { Spores grouped together in well-defined spots or lines—                      |                         |
| 5 | { Fronds composed of articulate filaments interlaced together. Spores immersed | } <i>Dictyotaceæ</i> .  |
|   | { Fronds filiform, jointed. Spores external—                                   |                         |
|   |  | } <i>Chordariaceæ</i> . |
|   |  | } <i>Ectocarpaceæ</i> . |

#### GENERA OF THE FUCUS TRIBE.

*HALIDRYX*—Air-vessels long, pod-shaped.

*CYSTOSEIRA*—Air-vessels in the branches; receptacles small.

*PYCNOPHYCUS*—Root composed of branching fibres; receptacles cellular.

*FUCUS*—Root a round or flattened disk; receptacles large, filled with *mucus*, traversed by jointed threads.

*HIMANTHALIA*—Frond round, small, and cup-shaped; receptacles resembling fronds, very long, repeatedly forked.

#### GENERA OF THE SPOROCHNUS TRIBE.

##### FAMILY I., OF THE ARTHROCLADIA,

With their spores attached to slender filaments.

*DESMARESTIA*—Frond solid, either filiform or flat, distichously branched.

*ARTHROCLADIA*—Frond cylindrical, furnished with whorls of small slender jointed filaments.

FAMILY II., OF THE SPOROCHNUS,  
With their spores produced in knob-like receptacles.

SPOROCHNUS—Receptacles lateral, on short stalks.

CARPOMITRA—Receptacles terminal at the tips of the branches.

#### GENERA OF THE LAMINARIA TRIBE.

ALARIA—Leaf with a distinct mid-rib.

LAMINARIA—Fronnd without a mid-rib.

CHORDA—Fronnd cylindrical, unbranched, hollow, and constricted at intervals.

#### GENERA OF THE DICTYOTA TRIBE.

CUTLERIA—Fronnd ribless, irregularly cleft; *sori*, dot-like and scattered.

HALISERIS—Fronnd forked, with a mid-rib.

PADINA—Fronnd fan-shaped; *sori* linear.

ZONARIA—Fronnd lobed; *sori* roundish.

TAONIA—Fronnd irregularly cleft, somewhat fan-shaped; *sori* linear.

DICTYOTA—Fronnd linear, forked; *sori* roundish.

STILOPHORA—Fronnds cylindrical; spores forming a wart-like *sori*.

DICTYOSIPHON—Fronnds tubular; spores irregularly scattered, solitary, or in dot-like *sori*.

STRIARIA—Spores in *sori*, arranged across the frond in lines.

PUNCTARIA—Fronnd flat and leaf-like; spores in small distinct dots.

ASPEROCOCCUS—Fronnd tubular, cylindrical, or compressed; spores in dot-like *sori*.

LITOSIPHON—Fronnd cartilaginous, filiform; spores scattered.

#### GENERA OF THE CHORDARIA TRIBE.

CHORDARIA—Fronnd, the central part *firmlly* gelatinous.

MESOGLOIA—Fronnd, the centre *loosely* gelatinous.

LEATHESIA—Fronnd tuber-shaped.

RALFSIA—Fronnd crustaceous.

ELACHISTA—Filaments pencilled, rising from a tubercular base.

MYRIONEMA—Filaments rising from a flat base, minute.

#### GENERA OF THE ECTOCARPUS TRIBE.

CLADOSTEPHUS—Stem not articulated, the *ramuli* alone jointed and set in whorls.

SPHACELARIA—Stem articulated, branched; *ramuli* distichous, pinnated.

ECTOCARPUS—Stem jointed, very slender, hair-like, generally much branched and flaccid.

MYRIOTRICHIA—Stem unbranched; *ramuli* in whorls, tipped with transparent fibres.

#### RHODOSPERMEÆ. RED SEaweEDS.

- 1 { Fronnd with a calcareous coating  
Fronnd cellular or filiform, not encrusted } *Corallinaceæ*.
- 2 { Fronnd (usually) filiform, and jointed either externally or internally, or  
composed of articulated fibres, combined together by gelatine.  
Fronnds continuous.

- 3 { Spores contained in external urn-shaped receptacles } *Rhodomelaceæ*.  
     (*ceramidia*)  
     Spores not in *ceramidia*  
 4 { Spores contained in naked berry-like receptacles, termed } *Ceramiceæ*.  
     *favellæ*  
     Spores immersed in the frond, or sub-external—*Cryptonemiaceæ*.  
 5 { Tetraspores scattered } *Delesseriaceæ*.  
     Tetraspores in defined spots  
     Tetraspores immersed in the branches and *ramuli*—*Laurenciaceæ*.  
 6 { Tetraspores either spread over the frond, or in cloud- } *Rhodymeniaceæ*.  
     like spots

#### GENERA OF THE RHODOMELA TRIBE.

**ODONTHALIA**—Frond flat, serrated, with a faint mid-rib; colour, very dark red.

**RHODOMELA**—Frond cylindrical, inarticulate, opaque.

**BOSTRYCHIA**—Frond cylindrical, inarticulate, dotted.

**RYTHIPHLEA**—Frond cylindrical, inarticulate, transversely striate.

**POLYSIPHONIA**—Fronds thread-like, articulate, longitudinally striate.

**DASYA**—Fronds cylindrical, with inarticulate stems and spreading jointed *ramuli*.

#### GENERA OF THE LAURENCIA TRIBE.

**BONNEMAISONIA**—Frond filiform, solid, much branched; the branches with opposite awl-shaped *cilia*.

**LAURENCIA**—Frond cylindrical, or compressed, pinnatifid; the *ramuli* blunt.

**CHRYSYMENIA**—Frond filled with watery gelatine, not constricted or chambered.

**CHYLOCLADIA**—Frond contracted at intervals, filled with watery gelatine.

#### GENERA OF THE CORALLINE TRIBE.

**SUB-ORDER OF THE CORALLINEÆ**—Frond filiform, articulated.

**CORALLINE**—Frond pinnated; *ceramidia* terminal, simple.

**JANIA**—Frond dichotomous; *ceramidia* tipped with two horns like *ramuli*.

**SUB-ORDER NULLIPOREÆ**—Frond crustaceous or foliaceous, opaque, not articulated.

**MELOBESIA**—Frond stony, forming either a crustaceous expansion or a foliaceous or shrub-like body.

**HILDENBRANDTIA**—Frond cartilaginous, not stony, forming a crustaceous expansion.

**HAPALIDIUM**—Frond plane, transparent, composed of cells radiating from a centre.

#### GENERA OF THE DELESSERIA TRIBE.

**DELESSERIA**—Frond leaf-like, of delicate form, with a mid-rib running through it.

**NITOPHYLLUM**—Frond without a mid-rib, delicate, expanded; sometimes marked with vague veins.

**PLOCAMIMUM**—Frond linear or filiform, much branched, distichous; *ramuli* secund.

### GENERA OF THE RHODYMENIA TRIBE.

- STENOGRAMME**—Conceptacles linear, rib-like; tetraspores collected into dense oval well-defined *sori*.  
**RHODYMENIA**—Tubercles convex, scattered; frond flat.  
**SPHÆROCOCCLUS**—Frond linear, compressed, and distichously branched.  
**GRACILARIA**—Frond filiform, compressed or flat, irregularly branched, the central cells large.  
**HYPNEA**—Frond filiform, irregularly branched, traversed by a fibro-cellular axis.

### GENERA OF THE CRYPTONEMIA TRIBE.

- GRATELOUPIA**—Frond pinnated, flat, narrow; between membranaceous and cartilaginous; structure very dense; *favellidia* in the branches, tetraspores scattered.  
**GELIDIUM**—Frond pinnated, compressed, narrow, horny; *favellidia* in swollen *ramuli*.  
**GIGARTINA**—Frond cartilaginous, cylindrical, or compressed; *favellidia* in external tubercles; tetraspores sunk in the frond.  
**CHONDRUS**—Frond fan-shaped, dichotomously cleft, cartilaginous: tetraspores in *sori* immersed in the frond.  
**PHYLOPHORA**—Frond stalked, rigid, membranaceous, proliferous from the disk; tetraspores in *sori* or in proper leaflets.  
**PEYSSONELLA**—Frond depressed, expanded, rooting by the under surface.  
**GYMNONGONGRUS**—Frond filiform, dichotomous, horny; tetraspores strung together, contained in a wart-like *sori*.  
**POLYIDES**—Root scutute; frond cylindrical, cartilaginous, forked; *favellæ* in spongy external warts; tetraspores scattered through the outer stratum of the frond.  
**FURCELLARIA**—Root branching; frond cylindrical, dichotomous, cartilaginous, *favellæ* unknown; tetraspores contained in the swollen pod-like upper branches of the frond.  
**DUMONTIA**—Frond cylindrical, tubular, membranaceous, of a dull red colour.  
**HALYMENIA**—Frond either compressed or flat, of a gelatinous membranaceous structure and pinky-red colour.  
**GINNANIA**—Frond cylindrical, dichotomous, traversed by a fibrous axis.  
**KALLYMENIA**—Frond expanded, leaf-like, fleshy, membranous, solid, of dense structure.  
**IRIDÆA**—Frond expanded, leaf-like, thick, leathery, and fleshy.  
**CATENELLA**—Frond filiform, branched, constricted into oblong articulations.  
**CRUORIA**—Frond crustaceous, skin-like.  
**NACCARIA**—Frond filiform, solid, cellular, the *ramuli* only composed of radiating free filaments.  
**GLOIOSIPHONIA**—Frond tubular, hollow, the walls of the tube composed of radiating filaments.  
**NEMALION**—Frond filiform, solid, elastic, filamentous; composed externally of free filaments, and internally of closely packed filaments.  
**DUDESSNAIA**—Frond filiform, solid, gelatinous, filamentous; composed in-

ternally of interlacing filaments, forming a lax net-work; outer filaments free.

**CROUANIA**—Fronde filiform, consisting of a jointed filament, whorled at the joints, with minute gelatinous *ramuli*.

#### GENERA OF THE CERAMIIUM TRIBE.

**PTILOTA**—Fronde compressed, inarticulate, distichous, pectinato-pinnate; *favellæ* stalked, involucrate.

**MICROCLADIA**—Fronde filiform, inarticulate, dichotomous; *favellæ* sessile.

**CERAMIIUM**—Fronde filiform, articulate, dichotomous; tetraspores mostly immersed.

**SPYRIDIA**—Fronde filiform, inarticulate, the branches clothed with minute bristle-like articulate *ramuli*; tetraspores sessile on the *ramuli*.

**GRIFFITHSIA**—Fronde articulated, dichotomous, or clothed with whorled dichotomous *ramuli*, rose red; *favellæ* involucrate, sessile, or stalked; tetraspores sessile on whorled *ramuli*.

**WRANGELIA**—Fronde articulated, pinnate; tetraspores scattered in *ramuli*.

**SEIROSPORA**—Fronde articulated; tetraspores in bead-like strings.

**CALLITHAMNION**—Fronde, at least the branches and *ramuli*, articulated, mostly pinnate; *favellæ* sessile; tetraspores sessile or stalked, scattered.

#### CHLOROSPERMÆ. THE GRASS GREEN SEaweEDS.

- |   |  |                        |
|---|--|------------------------|
| 1 | { Fronds filamentous, articulate }   | } <i>Confervaceæ</i> . |
|   | { Fronds not articulate }  |                        |
| 2 | { Fronds composed of one continuous cell, either filamentous, simple, or densely interwoven together, or filiform and branched } | } <i>Siphonaceæ</i> .  |
|   | { Fronds flattened or tubular, consisting of many-sided cells cohering together }  |                        |
|   |  |                        |

#### GENERA OF THE SIPHONACEÆ TRIBE.

**CODIUM**—Filaments closely combined into a sponge-like frond.

**BRYOPSIS**—Filaments free, pinnately branched.

**VAUCHERIA**—Filaments free, irregularly branched.

#### GENERA OF THE CONFERVA TRIBE.

**CLADOPHORA**—Filaments tufted, much branched.

**RHIZOCLONIUM**—Filaments decumbent, with root-like branches.

**CONFERVA**—Filaments unbranched.

#### GENERA OF THE ULVA TRIBE.

**ENTEROMORPHA**—Fronde tubular, simple, or branched; green.

**ULVA**—Fronde leafy; green.

**PORPHYRA**—Fronde leafy; purple.

#### ULVA.

*Generic character*.—The frond (which means all parts of a seaweed except its root) is a soft green membrane, often inflated like a bladder. The name is from a Celtic word, *Ul*, water.

**ULVA LATISSIMA**.—is a deep green weed, covering the stones as well as the rocks as the tide recedes, called by fishermen oyster green, because employed to cover oysters. It is also called *laver*, as it is used by epicures instead of the true laver, when *Porphyra* cannot be procured, but it is by no means so good.

**ULVA LACTUCA**.—Somewhat like the former; but although in its young state it is inflated or *saccate*, ere long it bursts, becomes cleft, and is of a lighter green. Both these very common seaweeds are beautiful in the album when properly prepared.

**ULVA LINZA**.—We may not find this seaweed in the first-tide pools, but it spreads out in delicate branches of ribbon-like folds, an inch wide, a foot or more long, of a rich bright green, tenderly green in the early summer, darker towards autumn. The fronds are waved and plaited at the edge, and the shadings produced by the curled margin add much to the beauty of this plant. It requires delicate treatment, for it is very thin, and must be floated quietly on the paper it is intended to adorn. Let the fronds spread naturally, and raise it slowly from the water; it will require little pressure, and adheres well to the paper. I have a specimen before me of seven fronds in a natural group, waved gracefully on a paper 7 inches wide by a foot long, and it is one of the loveliest in my collection.

*Fructification*.—Minute granules arranged in fours.

### ENTEROMORPHA.

**ENTEROMORPHA COMPRESSA**.—This is not simple in form, but more or less branched, and varies in shape and size according to the depth of the pool and its exposure to the sun. It becomes white in decay, and the children of sea-side homes call it sea-thread.

**ENTEROMORPHA ERECTA**.—This is the finest of the *Enteromorpha*, but usually grows in deep water, and is not particularly desirable for the collector. If amongst the weeds cast up by the storm, it is observed of a rich dark green.

### MYRIONEMA STRANGULANS.

(Name from the Greek, signifying "numberless" and "a thread.")

This is a microscopic seaweed. I notice it because it is so common, and so entirely overlooked by collectors except as spoiling the *Ulva* and *Enteromorpha*. It surrounds the one and spots the other with apparent decay; yet, if one of those brown spots be placed under the microscope, we shall see a soft cushion of jelly-like substance full of dots, and the dots are the tips of beaded filaments. If we bruise the mass, or make a section, we shall find large pear-shaped spores rising from amidst the filaments. Exceedingly beautiful is this object, and a valuable lesson on the advantage of minute observation. The hour of waiting for the receding tide has ample work and pleasure for those who possess a microscope.

### CONFERVA.

Floating or attached, we find this as a mass of thread-like substance in the tide-pools mostly at high-water mark, for the family is a large one, and

belongs equally to fresh-water ponds and brackish ditches. Although placed in the lowest ranks of *Algae*, the manner of its fructification is very interesting, and leads me to speak of the three kinds of reproductive bodies we are apt to confound in one word, *seed*.

*Seeds* are produced only by flowers of highest rank, and always contain an embryo, which is nourished by more or less albumen, a substance like the white of an egg, a provision stored up in the cells of the seed, for the use of the little plant whilst in the earth.

*Spores* are seeds without embryo, and develop in quite a different way, multiplying cells into a broad expanse or green film, out of which arise male and female organs, called *antheridia* and *archegonia*, which can only be seen with a good microscope.

*Zoospores* belong to *Conserva* of all kinds. They are minute bodies formed between the joints, which, when perfect, are ciliated or edged with fine hair called *cilia*, and this hair moves like so many little paddles, causing the zoospores to swim out of its cell, and, after whirling about for awhile, to fix upon the spot where as *Conserva* it will grow. Bearing this interesting fact in mind, gather any loose green threads, and lay them out: examine them with the microscope, when they will appear as coils of lovely variegated green ribbon.

*Generic character*.—Filaments green, jointed, attached or floating, unbranched. Observe this latter qualification, because it alone will distinguish it from an *Alga* extremely like it called *Cladophora*, a *Conserva*-like plant, but branched in various ways, common in all tide-pools from high-water mark to the deepest pool at lowest ebb.

## CLADOPHORA.

(The name means "branch-bearing.")

*CLADOPHORA RUPESTRIS*.—It is a plain-looking plant, closely tufted, and of dirty greyish-green colour; nevertheless, if taken from the deeper pools at half-tide, it is truly a beautiful plant of a fine dark green, and very useful to collectors for fancy work, as it dries well on the muslin or calico, and is very effective when mingled with red seaweeds and zoophytes.

*CLADOPHORA RECTANGULARIS*.—This species and those which follow are found as you track the tide to low-water mark. By examination with a pocket lens, you will see the difference between this and *Cladophora rupestris*. In the former, the branches are set on the stem at an acute angle; here they are very nearly at right angles, with minute branchlets between the larger ones. The deep sea casts this weed up on the Irish coast so abundantly that it has been carted away as manure, whereas it is very rare in England, but again more plentiful in Guernsey, where I have found it often in *Zostera* beds at low tide.

*CLADOPHORA ARCTA*.—About half-tide level to low-water mark, and most abundant in the spring and summer, we find very dark glassy green tufts attached to the rocks, with silvery, silky tips, glistening in the water. Take it by all means: it adheres well to paper, and long retains its beauty.

*CLADOPHORA GRACILIS*.—This is a lovely plant. Long, light, green,



silky filaments, from 6 to 14 inches long, float out into the pool, growing on other seaweed, especially on *Zostera* or sea-grass. Observe the branchlets, comb-like on one side of each larger branch; *that* is a distinctive mark, together with its glossy soft hue and silky texture.

### FUCUS.

This seaweed extends from high-water mark to lowest tide, and belongs to the olive seaweeds or *Melanosperma*; so called because the reproductive grains or spores are very dark coloured, nearly black when seen by transmitted light. We are so much accustomed to see the vast expanse of rock uncovered at low tide, clothed with heavy brown masses of coarse-looking weed, that the young collector is apt to pass it all by, as useless for the album, and of no particular value to any one.

This is a great mistake. Beneath those clustering masses of *Fuci* we find our greatest treasures, in delicate small *Algæ*, shadowed and sheltered thus by the coarser weed. Various names are given to this brown seaweed—seaweed, bladder, *Fucus* (its proper name), kelp-ware, black tang, Lady-wrack, or "Our Lady's wrack," from the richness of the crop it yields to the seaside agriculturist. On the Ayrshire coast the farmer and cottager vie with each other in raking up the black tang from the stormy sea; the poor Irishman depends on the harvest of weed for manure for his potato-field. In the town of Galway, some years ago, it is related \* that cargoes of this weed were brought from Slynthead, distant between 50 and 60 miles, and that some of the purchasers were, for purposes of manure, about to convey it inland 30 miles or more.

It is gathered for the same purpose all along the British shore; but nowhere more industriously than in the Channel Islands.

The people of Guernsey and Jersey call it "vraic," a corruption of *varec*, the French word for seaweed. So important is the matter, that the seasons for cutting and collecting it are appointed and limited by law.

The seasons are two, usually from the 10th of February to the 15th of March, and from the 22nd of July to the 31st of August.

When vraicking season has come, families join, and sally forth from all parts of the island to cut the vraic from the rocks. Armed with reaping hooks, the legs protected by strong shields of leather, the men wade deep into the water, the women following as far as they can go, and cut away the weed, which is raked into carts and carried up beyond tide-mark: many go in boats to distant rocks, and bring heavy loads ashore. Boys and girls work away in carrying *bings* full—or basket-loads—ever and anon getting refreshment of vraicking cakes, and cold tea, or gin, or cider; but still so eager at the work that many a time the good Guernsey horse has to swim, and the cart-load floats on the bosom of the inexorable tide which waits for no man.

Out of the cutting season there is still a vraicking always more or less going on. After every gale of wind, the waves cast up the *Fucus* they have

\* "Annals of Natural History." By W. Thompson.

torn from deep sea rocks, and women and children rake it in, spread it on the sandy or shingly shore to dry, then stack it for winter fuel, the ashes of which is the best manure of all for fields under crop. Fresh vraise is laid on as top-dressing for fallow ground or green pastures.

In the Hebrides, cheeses are dried by being covered with the ashes of this plant, which abounds in salt. In the Highlands, during snow-storms, the red deer descends from the wild mountains to the shore, to feed on this seaweed. The vesicles, which are full of a glutinous substance, are most valuable, both as a remedy for glandular affections, and, when bottled in rum, as an embrocation, really efficacious in rheumatic pains, and for ricketty or bandy-legged children. For glandular swellings, the plant is burnt to a black powder, and taken inwardly.

We now come to the botanical description of the plant and the number of its species.

The four common *Fuci* on our coast are *Fucus nodosus*, Knobbed Wrack; *Fucus vesiculosus*, Bladder Wrack; *Fucus serratus*, Serrated Seaweed; *Fucus canaliculatus*, Channelled Seaweed.

*Generic character.*—A flat, brown, leathery frond, branched, and abounding with air-vessels. The fruit is usually at the tips of the branches, swollen terminations, yellow and slimy, full of dots or pores by which the seeds are expelled. The manner of fructification is very interesting, and raises this seaweed high in the ranks of vegetable life.

Take these three abundant weeds as an easy lesson in the observation necessary to the determining what seaweed you have in hand:—

Has the brown seaweed a *mid-rib*? then it must be either *Fucus serratus* or *Fucus vesiculosus*. But the *Bladder Wrack* has long fronds from 2 to 3 feet long, the air-vessels as large as nuts, *in pairs*, the fruit-pods or receptacles also in pairs, and often forked or heart-shaped.

The *Fucus serratus* is toothed or scalloped at the edge, and both sides are dotted with pencil-like clusters of fine white hairs; besides which, the frond is often covered or spotted with the most delicate lace-work, which is the work of a tiny zoophyte with a very long name—*Membranipora*: each mesh of that fairy-like work was the dwelling of a perfect zoophyte; and this patch of silvery lace is a city of the dead—the habitations empty; and when the bright waves close over them, they become crystal caves, where minute Crustaceans play or Infusoria hide. We cannot easily mistake between these two.

If the *Fucus* has *no mid-rib*, it must be either the *Knobbed* or the *Channelled Wrack*.

*FUCUS CANAICULATUS*, or *Channelled*, is found at high-water mark, and seldom if ever grows below half-tide. It grows indeed where the spray of the tide just reaches it, and seems to require exposure to the air for many hours a day. True, it becomes black and crisp under the fierce rays of a midsummer sun, but upon immersion in the up-coming tide it regains life and flexibility. The furrow in its stem, its having no air-vessels, and the dense or thick tufts from 2 to 6 inches high, will sufficiently distinguish this from its robust brother,

*Fucus Nonosus*, which floats out on the water without a mid-rib also, but buoyed up by large air-vessels placed singly in the stem, which varies from 2 to 4 or 6 feet in length. The frond is jagged; and the fruit, which is olive green or yellow, according to its contents, is an oblong pod upon a stalk set always in a tooth of the frond.

Observe, the vesicles or air-cells are the very substance of the frond, and sometimes as much as 2 inches long: boys in Scotland make whistles of them by cutting them across near the end. This is quite the largest British species of *Fuci*, rigid, tough, and in thick tufts; but, like all seaweeds, its growth and appearance depend upon its position. I cannot too much impress upon young seaweed gatherers this important and often tiresome fact, that a plant may be short and bushy in high-tide pools, and long, strong, and thin at low-water mark; even the very colour changes as it lives more in the richer soil of the deep sea. It is really the same difference that we find between the flowers of the field and the flowers in the garden. Those growing on a barren soil, removed to a light rich earth, will expand into larger flowers with brighter hues. Just so and *more so* with the seaweeds. There is one "pestilent fellow"—*Ceramium rubrum*—who presents at one place the most delicate ladylike appearance, quite a "lovely bit" in the album, and at another place he is the coarsest, ugliest of ragged rascals: we fling it away, and won't believe that it is even related to the specimen we look for.

We have now observed and learned the four species of *Fucus* that cannot fail to attract our attention as we walk between the tide-pools. In so doing we have noticed the zoophyte *Membranipora*, and, doubtless, those little white bristles which zigzag up the stem or creep along the frond: they also are zoophytes—cities of the *Sertularia*. Every notch on the bristle is the home of one lovely little creature which, when in the water, rises up, flinging forth twelve sensitive feelers, that catch its food, and the whole bristle becomes a spray of stars; in daylight pearly white and flower-like stars; but at night every star flashes out phosphoric light, and the bristle is a wreath of illuminating lamps to the living creatures of the great deep.

### ECTOCARPUS LITORALIS.

(Name from the Greek, signifying "external" and "a fruit.")

We cannot examine a *Fucus* without noticing the tufts of brown, shaggy filaments, from 6 to 12 inches long, which hang on the frond. This is a seaweed of wide range from highest to lowest tide, infesting the mighty *Laminaria* of the deep sea: it dries a soft silky brown, and adheres well to paper. If we prefer a good green to its natural colour, dip it for a moment in boiling water, and it comes out a pleasant grass green.

There are fourteen species of *Ectocarpus*, parasitic on various plants. Its generic character is olive or brown thread-like tubes, jointed, flaccid, growing in tufts upon other seaweeds, sometimes growing on the mud of a low sea coast.

*Fructification*.—Spore-cases of various shapes, spherical, lanceolate, or imbedded in the branches, which necessitates the use of a microscope to

decide the species and enjoy the beauty of this common weed; for instance,

*ECTOCARPUS SILICULOSUS*, which makes a beautiful specimen on paper, is only distinguished by its fruit from one that may be growing on the same *Fucus*, and resembling it so nearly as to be mistaken for it. Upon closer examination, even as we float it out on paper, we shall find the fruit of *Ectocarpus litoralis* as a thickening of the filaments in bands of darker colour, and striped; whereas the fruit of *Ectocarpus siliculosus* consists of pod-like spore-cases on stalks, olive green, striped, tapering to a fine point.

### POLYSIPHONIA.

(Name from two Greek words signifying "many siphons.")

As I am not writing a scientific work, but a few hints for the seaweed collector, I must pass from *Fuci*, or olive green seaweeds, to one which belongs to *Rhodosperma*, or red seaweeds, because it will be the very first to arrest attention, and raise a question, "Is this worth gathering?"

We cannot fail to observe on the fronds of *Fucus* or old-cut stems of the *Fucus vesiculosus*, thick masses of brownish or purplish weed, hanging in dense tufts here and there. Gather some by all means—it is a *Polysiphonia*.

These seaweeds are some of the hidden beauties of Creation. How could we with the unassisted eye see aught that is lovely in those dark purple or olive brown tufts, growing so abundantly on the common *Fucus* everywhere? The tribe of the *Polysiphonia* is large and various; it spreads from high to low tide; some very small and delicate, or long and filmy, and the colour from brown to violet in every intermediate shade.

Twenty-four species are found in Britain. (See systematic list.)

*Generic character*.—Froned thread-like, partially or generally articulate; the joints are striped, because the stem is composed of parallel tubes or siphons, from whence its name—*poly*, many; *siphon*, tube. The number of these tubes varies in the species, and helps to determine them.

*Fructification*.—Twofold on distinct plants:—1. *Ovate* capsules or cells, containing pear-like spores. 2. *Tetraspores*, or clusters of four spores, imbedded in swollen branches.

*POLYSIPHONIA VIOLACEA*.—A splendid violet seaweed, from 6 to 10 inches long, with a principal stem and a multitude of smaller branches, like a tree; if in fruit, dotted like a well-laden plum tree, with *ceramidia*, or urn-shaped cells, or tetraspores in bead-like rows on branchlets. Four siphons are in the stem, and the skin is full of irregular violet cells, which partially conceal them. This is a distinguishing mark: also observe the tufts of thread-like fibres at the end of the branches. It grows in all mid-tide and low-tide pools.

*POLYSIPHONIA URCEOLATA* (the Hair-like Polysiphonia).—On the stems of *Laminaria digitata*, large tufts of this seaweed may be found, varying in length from 3 to 9 inches; colour, a dark red. Here the pretty seed-vessels, instead of being at the tips, are seated on branches, singly—lovely little urns of transparent rose-coloured cells, in which we see oblong bodies of deeper hues; and by a little gentle pressure the urns will open their mouths, and the spore-cases come out; or, if the fruit be tetraspores, we

shall find it in single rows at the tips of the *ramuli* or short branches. Again, we observe only two siphons visible in the stem, for it contains but four, whereas in other species there may be as many as twenty. Of course all this is only seen with a microscope, but one of moderate power will exhibit these beauties; whereas, simply dried on paper, this *Polysiphonia* is black, and hardly to be distinguished from tufted *Polysiphonia*.

#### CERAMIMUM.

(Name from a Greek word signifying "little pitcher," in allusion to the shape of the fruit—which never does resemble it.)

**CERAMIMUM RUBRUM** (common Red Ceramium).—This is a most puzzling plant: sometimes delicate rosy red, a very prize for the album; sometimes so coarse as to be flung aside as a worthless weed. Nevertheless, do not throw any away, because on large coarse tufts we often find very pretty parasitic plants.

The tips of the filaments are forked, but do not curve inward—rather curve outward; and the fruit is a berry, surrounded by four short branches, or a number of tetraspores (little red dots, each containing *four* tiny seeds), which circle a swollen branchlet, and give the plant a beautiful bright red appearance. It is common everywhere, and in all tide-pools.

**CERAMIMUM DIAPHANUM**.—This is very lovely, and found parasitic on other plants, or in shallow pools resting on the sandy bottom; it is about 3 inches long, and the tuft feels soft and silky. When floated on the paper, we see its beautiful texture of transparent white, stem with rosy red joints, and if in perfection, with deeper red seeds in a swollen joint, three in each cell; or with three bright berries supported in a cradle of short branchlets, near the tips of the filaments.

*Habitat*.—On rocks and seaweeds. Winter and summer.

#### MESOGLOIA VIRESCENS.

The soft shiny fronds of this plant will help to recognize it. It is of a light pretty green, the stem much branched, and it adheres well to paper, making an excellent specimen. If examined with a microscope, the texture is truly beautiful: the filaments are composed of little cells, strung like beads in tufts, and joined to a main row of cells; at the base of the tuft spores are visible, dark olive dots with a pellucid border.

#### CHYLOCLADIA.

(Name from Greek words signifying "juice" and "branch.")

**CHYLOCLADIA KALYFORMIS** (Salt-wort Chylocladia).—This is a beautiful specimen for the album. It dries well on paper, though staining it a bright red from the rupture of its tubular branches. The colour is often greenish and yellowish in the stem, and when growing in shallow tide-pools, exposed to a bright sun, it is quite yellow. It grows at various depths and in different situations, on rocks or on sand, as may be. The fronds are frequently 12, or even 20 inches long, with spreading branches and bead-like joints. The fruit is a round berry without obvious pore, and with a wide trans-

parent margin, containing many crimson pear-shaped spores: this alone would decide the species. Tetraspores are scattered thickly in the joints of the *ramuli* or lesser branches. It is found from June to August, all round our coasts.

**CHYLOCLADIA OVALIS** (Oval-leaved Chylocladia).—This is a very pretty specimen, but to have it in perfection, seek it in the months of April and May, on rocks and stones within tide-marks. There is a difference in its structure that will help the collector in naming it. The stem is *not* jointed, but solid; from 2 to 10 inches high, and edged with oblong leaf-like little branches: some of these appear to be single cells, some are compound and set on little stems, like leaves; if divided lengthwise, these joints are seen to be hollow chambers partitioned off by one or two membranes, and filled with fluid.

#### PTILOTA SERICEA. (SILKY PTILOTA.)

(*Ptilota* from a Greek word signifying "pinnated.")

In company with *Chylocladia* under the hanging rock is this beautiful feathery seaweed: its sister plant *Ptilota plumosa*, more rare and lovely, is found at lowest-water mark, or cast up after a storm.

The texture of this seaweed is worthy of microscopic examination. The frond is not jointed, but the branches which divide and subdivide are composed of minute cells filled with pink fluid, and with transparent divisions: the fruit is often abundant. *Favellæ*, or large cells having a dense mass of spores within them, are found at the tips of the branches, generally only two of them, partially sheltered by short branches. Tetraspores are found in rows upon the *ramuli*, little dots of white cells inclosing red spores.

#### GRIFFITHSIA.

(Named in honour of Mrs. Griffiths, of Torquay, Devon, whose many discoveries in and intimate knowledge of seaweeds are well known in the scientific world.)

A most valuable family of seaweeds for the collector's album. There are seven species.

**Generic character.**—Frond rose-red, thread-like, jointed slightly, branched, sometimes whorled, and the joints transparent.

**Fructification.**—1. Roundish gelatinous receptacles or *favellæ* containing minute spores. 2. Tetraspores, affixed to whorled *ramuli* or lesser branches.

**GRIFFITHSIA SETACEÆ** (Bristle-like Griffithsia).—Hanging from the shadowy side of a rock or in a mid-tide pool, in tufts from 3 to 6 inches long, colour deep crimson, and slightly branched, or rather forked. On immersing it in fresh water, the membrane bursts with a crackling noise, and the colouring is lost: like several others of the genus, it stains paper of a bright carmine, which remains unaltered for years. This seaweed requires mounting as soon as possible, for it soon changes colour, and becomes yellowish. Keep it in *sea-water*, dark and cool.

The fructification is a beautiful microscopic object. With quite a low power we see the tuft of little *ramuli* at the end of a branch, within which are tetraspores, cells full of crimson spores, or else we find on naked *ramuli* two larger cells or *favellæ* full of minute red spores. There is a third kind

of fructification sometimes found in the tufts which bear the tetraspores, called *antheridia*—minute oval bodies, composed of dense whorls of glossy threads, not perfectly understood. This plant, delicate as it is, may be kept in sea-water, for many months preserving its colour and fruit. A glass bottle sealed up will not require changing for a year, and gives an interesting object as a sea-side remembrance.

**GRIFFITHSIA CORALLINÆ.**—We only find this in deep pools, usually on the shady side or under other seaweed near low-water mark. It is jointed like a *Coralline*, but of a rich crimson, and may be known by its strong disagreeable smell, especially when brought home and immersed in fresh water; it then discharges its colour, so it must be mounted quickly. The joints in this plant are pear-shaped, and the fruit is clustered round them, protected by very short branches. The tetraspores are densely crowded quite round the joint, the *favellæ* are on one side only, and occupy the place of a suppressed branch. The tufts are usually 6 or 8 inches high. Common on all our coasts.

### LAURENCIA.

**LAURENCIA DASYPHYLLA** (*Sedum*-leaved *Laurentia*).—This is a fine plant for the album, and if gathered in a deep shady pool, as near low-water mark as possible, the specimen will be nearly 12 inches long; the colour varying again from yellowish-purple to pale pink, or even dark purple, and sometimes a mixture of all three, which greatly helps the young collector in naming it. Very slender, the main stem throws out long lateral branches, all having numerous linear club-shaped *ramuli*, one or two lines in length, and very much attenuated at the base, resembling leaves of a *Sedum* or stonecrop.

The stem under a lens appears to be striated or striped, because this species nearly approaches *Rytiphla*, in having a jointed axis, composed of four or five large cells, round a central cavity, and the length of these cells makes the stripes, which are most visible in the youngest branches.

Tetraspores are seen in the club-shaped *ramuli*. *Ceramidia*, ovate capsules, transparent, pink, and containing each a cluster of pear-shaped spores.

This is common on the shores of Great Britain and the Channel Islands.

**LAURENCIA TENUISSIMA** (*Slender Laurentia*).—This is a very pretty seaweed carefully handled, as it is tender and somewhat gelatinous. Pale purple or pinkish red, becoming yellowish, and in fronds of from 6 to 8 inches long, it is found parasitic on coarser weed in mid-tide pools, but it is by no means common. Seek for it in sunny shallow pools. It is a straggler from its native shores of the Mediterranean Sea, where it grows in perfection. Here it needs all the warmth our colder climate can give it, and is therefore more "at home" in Guernsey and Jersey, where the hot Gulf Stream from Mexico passes through our channel and influences our tide-pools as well as our land vegetation.

The fruit, often dotted thickly on its branches, small urns containing pear-like spores, or tetraspores imbedded in the leaf-like *ramuli*. Weymouth, Isle of Wight, Channel Islands, Torbay, Irish coast, are its localities.



LOCALITY OF THE CORALLINEÆ

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## HYPNEA PURPURESCENS.

(Name an alteration of *Hypnum*, the name of a genus of mosses, in allusion to the moss-like appearance of this seaweed.)

This is one of our commonest plants, growing in dense masses on the side of our pools, from 6 inches to 2 feet long. The spreading branches, mingling with the more rugged fronds of *Fucus* or *Chondrus Crispus*, is a shelter for the prawn and the tiny crab, or timid tiny fish. It floats out laden with fruit, berries, or tubercles called *coccidia*, immersed in the *ramuli*.

The colour is dull purple; dries nearly black; does not adhere well to paper.

*Generic character*.—Frond thread-like, cartilaginous, much branched, cellular. Cut across the stem, it shows large cells in the centre surrounded by a network of smaller ones.

*Fructification*.—*Coccidia* or berries and tetraspores.

## CORALLINEÆ. (CORALLINE TRIBE.)

"Involved in sea-wrack, here you find a race  
Which Science, doubting, knows not where to place."—CRABBE.

In the mid-tide rock-pools the seaweed gatherer is puzzled by the tufted masses of white-jointed foliage which line the rock, or overgrow the old limpet shells. Some are large jointed, and so unlike seaweeds that formerly they were classed with zoophytes and corals; some are like moss—fine white moss: this is *Jania*. Some Corallines mimic the lichens, and spread over the rock in purple and white patches, or run over a seaweed like a scaly parasite: these are *Melobesia* of various kinds. They tint the rocks and stones with beautiful pink, white, and purple colours, and are formed by a deposit of carbonate of lime or vegetable substance. There are three common species on our shores—*Corallina officinalis*, *Jania*, *Melobesia*.

*Generic character*.—Thread-like fronds, jointed, branched, mostly pinnate or with smaller branchlets, coated with calcareous or lime deposit.

## CORALLINA OFFICINALIS.

(The name from *Corallium*, coral.)

This is the coarsest and largest kind, stunted and often misshapen in the high-tide pools, but growing finer and more beautiful as we advance towards the deep sea. In the water it has a delicate purple tint, but bleaches very quickly to a dead white. The fruit is those swollen tips which show, when opened, a cluster of pear-shaped spore-cases, each containing four spores or tetraspores.

If a bit of this Coralline be steeped in weak muriatic acid, the structure will be seen of vegetable cells in stripes across the frond, and prove its position in the family of seaweeds. If a bit be dried and held in the flame of a candle, a beautiful white light is produced.

These Corallines are abundant on the coasts of tropical countries: the shores of Australia have fan-like, rose-coloured varieties, or triply branched, or whorled, like our *Chara*, but we have none so beautiful.

## JANIA.

*Generic character.*—Has slender branches, forked repeatedly, and inter-twisted like a fine white moss. The crust is of carbonate of lime, solid, without pores, and the fruit is like that of *Corallinæ*, but in the axils of the branches, and *not* at the tip.

This is a very pretty weed, and useful in fancy work; various in colour, either white, or pale green, or a pretty pink. It is very often cast up in loose masses on the shingle after a storm, or fringing the stems of larger seaweeds.

## MELOBESIA.

This will attract attention, although it cannot be gathered. To all appearance it is a scaly, stony substance, growing on rock or seaweed, very like a lichen in form, thin as paper, very brittle, fastened by the middle of each frond, and the edges are free, yet the masses are dense, for the fronds overlap each other, and are spotted with *ceramidia*, or urn-shaped cells, containing each four spores or tetraspores. When a portion of this *Melobesia* is soaked in weak muriatic acid, the coating of lime is removed, and a most delicate zoned structure is revealed by the microscope. A few minutes will remove the deposit of lime. Wash the portions in a watch-glass, and, with a camel-hair pencil, place a morsel on a glass slide, with a drop of water; cover it with a thin piece of glass, and observe how this apparent stone is really a beautiful vegetable structure.

## POLYSIPHONIA.

*POLYSIPHONIA PARASITICA.*—This is so different from the others that it must be obtained if possible. Look for it on the *Melobesia* at low tide. It has fronds more like a tiny fern, when spread out fan-like on the paper. Colour, a fine clear red. To find this pretty specimen, go to the extremest edge of the water, and on the sides of the rock, on clumps of the Coralline called *Melobesia*, we find small tufts of 1 or 2 inches high, well worth bringing home.

*POLYSIPHONIA VARIEGATA.*—On mud-covered rocks and on *Zostera*, of purple hue, and from 4 to 8 inches long, in dense tufts passing from a stout stem to filaments of extreme fineness. Three broad parallel veins mark the stem; but on making a transverse section we find six siphons. The fruit is broad oval capsules and small tetraspores imbedded obscurely in slightly swollen *ramuli*, more or less dark purple.

## HALIDRYS.

"Look who list, thy gaze-ful eyes to feed  
With sight of that is fair; look on the frame  
Of this wide universe, and therein read  
The endless kinds of creatures which by name  
Thou canst not count, much less their nature's aim  
All which are made with wondrous wise respect,  
And all with admirable beauty deckt."

*HALIDRYS SILIQUOSA.*—So look on this long brown weed, and examine first—itsself. Those swollen pods are air-chambers, divided into ten or twelve

cells, through each of which run several minute tubes or threads; at the end of a branch, other pods, like these, but pierced with small holes, contain the seeds. And yet not simply seeds or spores: divide one, or make a thin slice, and, examining it under the microscope, we shall see seven or eight large cells immersed in the substance of the pod, and in each cell a multitude of oblong, simple, dark brown spores, mingled with tufts of branching filaments tipped with orange-coloured *antheridia*: these latter are supposed to fructify the spores.

Then on the frond we find rich silvery tufts of a zoophyte called *Cellularia reptans*, or fairy plumes of *Plumularia cristata*, on every branch of which a delicate crystal cup holds the living creature safe from the storm, while it rides upon the floating frond, stretching forth twelve transparent flexible feelers; feeding on invisible golden fish, the *diatom* we call *Navicula*, or swallowing golden rods of another *diatom* called *Bacillaria*. There is another zoophyte who loves the *Halidrys*—*Valkeria cuscuta*: it resembles in miniature the dodder that lives upon our furze bushes, and is extremely pretty laid out upon paper.

#### PADINA PAVONIA.

This is an object of much value to collectors. It is a most remarkable plant, so unlike all other seaweed as to be recognized by the simplest description; and therefore, without a difficult scientific sentence, I advise my readers to look at the bottom of some shallow, sandy, sunny pool about half-tide level, and see if there are not groups of fan-like fronds from 2 to 4 inches high—curled inwards, striped across, and glistening in orange, green, grey, or reddish hues, sprinkled with white chalky powder. The edge of the frond is fringed with delicate hair-like fibres, and curled inwards.

*Fructification*.—Very like that of the hart's-tongue fern: the spores are secreted beneath the skin, which breaks longitudinally, and forms an *indusium* or shelter for them.

Many authors have compared this admired seaweed to the expanded tail of the peacock, and probably thence it derives its name; truly, the play of colour on the frond beneath the water is so beautiful, we bend to gaze upon it, and forget to gather it.

*Padina pavonia* luxuriates in tropical climates, and grows abundantly on the shores of the Mediterranean Sea, but is found plentifully on the south coast of England, at Torquay, and in the Channel Islands; both Jersey and Guernsey yield very fine specimens.

#### CALLITHAMNION.

(Name signifying a "beautiful shrub or plant.")

This family contains the smallest yet loveliest of the seaweeds: some of them attain to a length of 8 inches, and in appearance so much resemble *Polysiphonia* as to require the aid of a pocket lens or microscope to discern the difference; some are so minute as to appear but as a fairy fringe on the edge of sea-grass *Zostera*, or a velvety substance on mud-covered rocks, or

a pencil of rose-coloured filaments on *Ceramium rubrum*, or a mere blotch on the old sea-beaten stems of *Laminaria digitata*.

On paper they form the prettiest little trees laden with fruit, and under the microscope the structure and colours are perfectly beautiful. They are not difficult to recognize if we attend to the following directions:—The tufts are usually fine, small, silky and soft to the touch: floating out in the water, the slender, rosy, and often much-branched filaments with dots along the branches will arrest attention; and these are the

*Generic character*.—Frond, rosy or brownish-red, thread-like, with an opaque and cellular or translucent and jointed stem. Each joint has a single long cell of colour, and the intermediate space is white and transparent.

The fruit, quite different from that of *Polysiphonia*, consists of a number of berries inclosed in an envelope, called *favellæ*, and tetraspores are scattered along the branchlets, giving the dotted appearance I referred to above.

There are twenty-five species of this plant, and most of them are common on the shores of Great Britain and the Channel Islands.

**CALLITHAMNION PLUMULA** (Feathery Callithamnion).—Of all the seaweeds we have yet examined, not one is so lovely under the microscope, or makes a prettier small specimen on paper. It is from 2 to 4 inches high, and grows on the rocks or on other seaweed. The soft red filaments spread out in the water will attract the collector; but he will never know the prize he has got until, floating it on paper, the carmine hue and the rare beauty of the plant in fruit makes him examine it more closely with a lens or microscope. Then the regularity of the branches, unlike every other species, decides it at once: right and left on every joint a comb-like branchlet springs, laden probably with tetraspores, or on shorter main branches a group of *favellæ*.

This charming plant is scattered in its loveliness everywhere. Dr. Hooker gathered it off stormy Cape Horn; Mr. Gunn sent it home from the sunny bays of Van Dieman's Land. So gracefully yielding to the rough waves' play, that even those delicate tetraspores are not shaken from their sprays until the time when they must die to live.

**CALLITHAMNION CRUCIATUM** (Cross-bearing Callithamnion).—On mud-covered rocks at lowest tide; rather rare. This may be known from *Callithamnion plumula* by the tips of the branches being evidently tufted, opposite branchlets at every joint of the larger *ramuli*, and crimson tetraspores, marked distinctly with a *white cross*.

The filaments are from 1 to 2 inches long, hair-like, flaccid; colour, a brownish-red. It adheres closely to paper, but is apt to decompose if wetted after once it has dried.

### DELESSERIA TRIBE.

(Named in honour of Mons. Delessert, a French naturalist and botanist.)

This is a strikingly beautiful tribe. It contains three kinds of red seaweed that all collectors seek with avidity, and return home with some disgust if they cannot find them.

Frond rose red, flat, membranaceous, with a mid-rib.

**Fructification.**—Two kinds on distinct individuals. 1. Hemispherical tubercles (called *coccidia*), mostly on the mid-rib, containing a tuft of filaments bearing spores. 2. Tetraspores forming definite spots in the frond, or in distinct leaf-like processes.

**DELESSERIA SANGUINEA** (Red Dock-leaved Delesseria).—This is a great prize. Look under the masses of *Fucus* at extreme low-water mark: you must not mind wetting your feet, if you want this weed. Wade into the sea, and seek it in the shadow of a rock under water; there you will probably find these beautiful blood-red leaves, veined like a chestnut leaf, and varying in size from 3 to 10 inches. In summer the leaves are large with a wavy margin, smaller leaves springing from the mid-rib as the season advances. In the winter these leaves decay, become ragged, and the bare stem is found with the fructification either tubercles on little stalks or tetraspores produced in little leaf-like bodies. A variety is sometimes found with lobed leaves; the mid-rib divides near the top, and the leaf consequently forks.

The substance of this plant is delicate; it adheres closely to paper, and preserves its colour admirably.

### PLOCAMIUM.

(Name meaning "intertwining hair," in allusion to the finely-branched fronds.)

This is the desire of all hearts in collecting for fancy work, or album, or microscope: a treasure for every one. We hear a scream of delight from the little lady in a rock-pool, "*Plocamium!*" We make a rush for that mass of crimson weed rolled in by a great wave—" *Plocamium!*" We greedily clutch the floating rosy fronds as we push aside the heavy *Fucus* in a deep rock-pool—" *Plocamium!*" And then, when the album is overlooked, how we gaze down the page that is filled with the graceful, rich, bright red *Plocamium*, remembering the sunny shore where it was gathered.

"Crimson weeds which spreading flow,  
Or lie like pictures on the sand below,  
With all these bright red pebbles that the sun  
Through the small waves so softly shines upon."

Look at it closely with a pocket lens: you will see on some plants the red berries called *javellæ*, on others a kind of fructification we have not yet described—little trefoils, deeply crimson, scattered thickly amidst the comb-like branchlets.

You will not surely be content with this superficial examination. Take a little spray of *Plocamium* with these trefoils, called *stichidia*, put it under the microscope with the necessary thin cover and drop of water, and you will see a beautiful structure as of fine net over rose-coloured substance, and in each division of the trefoil numerous tetraspores imbedded. The sight will repay all trouble, and again and again you will look, and call others to see.

This lovely *Plocamium* is abundant everywhere, on the stormy coast of Cape Horn, on the sunny shores of New Zealand, under the tropical sky of Brazil, and equally healthy and happy on the rocks of the cold Baltic Sea, and in the soft sea of the Channel Islands, where, in truth, it partakes of the softness, our island specimens being very bright and flexible, whereas up in the north they are both ragged and rigid.

I give no scientific description beyond this :

The stem is red and flat, branched ; the branches toothed as it were *on one side*, with three or four *ramuli* always on the same side : there will be a kind of *intuition* the moment you see it—"Oh, *that is Plocanium !* "

### BONNEMAISONIA. (ASPARAGUS-LIKE BONNEMAISONIA.)

BONNEMAISONIA ASPARAGOIDES.—A most delicate pretty plant, so unlike any other that we can scarcely mistake it. Seen floating in the water, nothing can be more feathery and elegant, nor does any dried specimen ever come up to the living growing in a shadowy pool.

The fructification is so distinct as to be clearly discerned by the unassisted eye—like fruit upon a tree. The frond is narrow, flat, rose pink, and *ciliated*—remarkably so, and transparent urn-shaped capsules are seated between the *cilia*. The spores are pear-shaped, crimson, with pellucid border. It is more common in the north of England and Scotland than in the south, yet we have some good places for it in the Channel Islands.

### IRIDEA EDULIS

is a flat oval upright frond of dark red, often glittering in the water with bluish and purplish tints, and still more often ragged and eaten into holes by marine animals, who luxuriate on its fronds. It is also eaten by the fishermen in the south-west of England, who pinch it with hot irons to make it taste like oysters. In Scotland they roast it in the frying-pan ; but seldom will you find it in its own pool without a pretty little sea-slug, or yellow nerit, or purple *Trochus*, enjoying the pasture God has made for him.

### HIMANTHALIA LOREA.

(From the Greek words meaning "strap" and "branched.")

The frond properly so called in this plant is an olive green cup or top, from the centre of which spring several long, branched, strap-shaped filaments, from a quarter to half an inch wide, and from 2 to 10, or even 20, feet long. These straps are dotted with pores, which are apertures by which the spores escape, for at each dot there is a large cell or conceptacle filled with transparent jointed threads, amidst which are three or four olive-coloured spores.

The substance of these strap-shaped filaments is a watery gelatine, transversed by confervoid threads. If cast ashore, we find this covered with yellow dots, and the *mucus* of the plant cast forth with the spores as in a death struggle, as the battle of wind and waves have torn it from the rocks below.

*Himanthalia* is common everywhere. Children call it "sea-thongs."

### GLOIOSIPHONIA CAPILLARIS.

(Name from two Greek words signifying "viscid" and "tube.")

At extreme low-water mark, but more frequently thrown up after a storm, we find this beautiful plant ; the colour is a fine rosy crimson, and valuable for our album. We should know it by the

*Generic character.*—Fronde tabular, from 3 to 12 inches long, filled with watery gelatine: several fronds arise from the same base, all of them undivided, but much branched with extremely fine lesser branches.

This plant is one of those which require a microscope to enable us fully to appreciate its beauty; for the clear, transparent texture then shows delicate filaments radiating from the centre, with crimson spores imbedded in them. The walls of the frond are composed of closely interwoven longitudinal fibres, through whose joints run a narrow coloured bag, all of which is lost in the dried specimen, as, from the gelatinous nature of the plant, it adheres very closely to the paper.

This is found, all the summer, on the coasts of Devonshire, Cornwall, Sheerness, Falmouth, Ireland, Scarborough, and the Channel Islands.

### PORPHYRA.

(From a Greek word signifying "purple.")

*Generic character.*—Delicately membranaceous, flat, purple.

*Porphyra* is also called *laver* and *sloke*. It is a favourite dish with some people, stewed for several hours, until quite tender, and eaten with pepper, vinegar, and butter; others prefer it cooked with leeks and onions, or pickled and eaten with oil and lemon-juice. It does not look inviting, and the taste is peculiar, but it is very wholesome, and will keep a long time in closed tin vessels; therefore valuable in long sea voyages.

As a specimen for the album, *Porphyra* requires careful treatment, or else it shrinks, crumples up, and starts from the paper; whereas, if well laid out, it is beautiful, especially *Porphyra laciniata*. This is the best way of mounting it: Float the purple frond on the paper, raise it gently, cover it with muslin in the common way, but do not remove the muslin for two or three days; meantime change the blotting-paper (which of course is laid over the muslin) very frequently, and dry the paper at the fire, laying it on quite warm; this so thoroughly dries the specimen that it adheres perfectly to the paper.

*Porphyra* varies in size and colour between the tide-marks—sometimes long and ribbon-like, violet or purple; sometimes long and broad, it changes to reddish-purple and yellow.

### LAMINARIA.

(The name is from *lamina*, a "thin plate," in allusion to the flat frond.)

Seven species of this magnificent plant belong to the British coast: our commonest are the three we find in every bay. We drag it up from the ebb of the tide—a treasure for the naturalist and conchologist. We watch it in its deep shadowy forest life, as we near the shore and glide into smooth clear water: it is a cover for the rock-fish, a lurking-place for crabs; a world of life we dream not of, until the eye is educated to read the pages of the mighty deep.

*LAMINARIA DIGITATA*, *LAMINARIA BULBOSA*, *LAMINARIA SACCHARINA*.—These are the three probably at our feet after every storm. See you that broad smooth brown frond, with a thick round stem, and broad brown



ribbons like a flag at the end of it? that is *Laminaria digitata*, or "many-fingered." See you trailing on the sand, or curled up between the rocks, a thinner brown frond, with crisped and curled edges, speckled most likely all over with little white shells (*Serpulæ*), torn perhaps from its root? but if not, then be sure you pause to look at the knobbed and hollow bulb that once fastened it to the rocks below: this is *Laminaria bulbosa*. Or do we find a single smooth brown frond, clear, olive, and glossy, perhaps semi-transparent, and with a conical root of twisted strong fibres? that is *Laminaria saccharina*.

Let us take them in order—there is somewhat to say of each of them, and some others beside.

**LAMINARIA DIGITATA.**—*Sea-girdles, Tangle, Sea-staff, Sea-wand, Cows'-tails*—these are its familiar and pet names in the fisherman's hut. These great thick stems are cut up by the fisher-boys as handles for knives or hooks. When it is fresh the blade is stuck in, and as the stem dries it hardens, contracts closely and firmly, embracing the hilt of the blade. It takes some months to be quite firm, and then is hard and shrivelled, very like harts'-horn.

To the naturalist, few plants are richer in subjects of investigation. Surely we find the beautiful transparent limpet, called *Patella pellucida*, on the shiny frond, more surely still, snugly ensconced in the cave it has eaten out for itself. The lovely *Patella cerulea* is found in the centre of the fibrous root, and is known by its radiating lines of the deepest ultramarine. If our frond has come from the

"Calm depths of ocean, where the wave has no strife,  
Where the wind is a stranger, and sea-snake hath life,"

then we find coils of pink glossy ribbon, which are millions of eggs laid by the pretty sea-slugs called *Doris* or *Eolus*. If we cut off the tangled root and put it in a basin of sea-water, such a host of tiny beings will come forth and swim about as may well keep the microscope at work for an entire morning; besides, the stem is fringed with small seaweeds for the album. A red cushiony spot will be *Callithamnion pluma*; fluttering little red banners will be *Delesseria ruscifolia*, or fronds of the lovely *Ptilota plumosa*.

We have not touched upon the hidden uses of this brown sea stem. Look reverently at it. Do you know that a little slice under the microscope will show you a tissue of delicate cells in which God has stored up one of the most precious remedies for suffering mankind? that He has given the *Laminaria*-stem power to abstract from the sea a precious substance called *Iodine*—that which alone can relieve the pale sad sufferer from scrofula, reduce the swollen glands, check the ravages of cancer, act on the torpid liver, ease the racking pains of rheumatism, give the flush of health to the wasted weary invalid? Yes—this is hidden in that rough brown stem, and is brought out by fire in the kelp-kilns of Ireland and Scotland. Another use is its importance in the manufacture of glass: our fragile beautiful glass springs from the old brown seaweed.

Some shipwrecked sailors, making a fire with the dried weed amidst fine river sand, found the strange transparent substance in the ashes which gave the first hint of our window-panes. What should we have done for soap

without those sticks of tangle? And do we remember that iodine, like the violet mist of the Arabian tales, rises from the burning kelp—a genie whose power gives back the lost, the absent, the beloved? Did not the Calotype, the Daguerreotype, owe their birth to this subtle essence, compelling the sun itself to be a portrait painter?

Well may those banners float out upon the sea, and well may we ponder on the tangled fronds cast up by the storm. There is subject for a long lesson and for a song of praise in the weather-beaten stems of old *Laminaria digitata*.

**LAMINARIA BULBOSA** (Sea-furbelows; Furbelowed Hangers).—When this plant is young the frond is plane and undivided, the stem short; the root is merely fibrous, with a knob near it; as it grows this knob enlarges, becomes hollow, covers the root, and throws out strong fibres, which move the growing plant to the rocks in deep water. Sometimes this bulb is a foot across, and the fronds, of which several are attached, may spread out in a circle of 12 feet in diameter—one single plant a sufficient load for a man's shoulder.

Curious little slugs and snails lurk in that grand cavern, the hollow bulb, and fishes lay their eggs there. I have found them often. There seems to be a mass of jelly thinly spread in patches within—two black dots in regular order, and an arch of minuter dots. Cut out a patch, but keep it in water until you can place it in a watch-glass under the microscope. The double dots are the eyes of an unborn fish, the dotted arch its tiny form coiled up round a large air bladder. We see the circulating blood and the little heart beating, and we are glad that we did not throw away the old spiny bulb. Cut it open, if you are wise, and learn its secrets.

And those little shells upon the curly frond, what are they? Could you see it under water, calm sunny water, all these are living, lovely little creatures, so delicately yet elaborately fashioned that we hold our breath in astonishment as we gaze upon the uprising plumes from every tiny shell. The plumes are the breathing organs of the little *Serpula*: they rise and fall instantaneously at approach of food or sound of danger; and beside the plumes is a horny thread, scarlet or yellow, knobbed at the end, which, when drawn in, corks up the aperture securely. Wonderful are these specks on the *Laminaria*. Take some home and put them in a watch-glass with a little sea-water, use a low power, and see the tiny creature peer forth and wave its pretty plumes. Just imagine the mechanism that is used for its safety and instantaneous retreat. By the action of muscles of indescribable delicacy, concealed in little warts or feet, the *Serpula* can throw out bundles of bristles, and on the back of each foot is a row of microscopic hooks which catch the lining of its tube, and enable it to draw in or out. These hooks are toothed; each little creature carries about 1,900 such upon its corslet, and no fewer than 14,000 teeth are fashioned and finished for the use of this atom in creation. Think of this ere you drop the frond as unfit for a lady's album: it is a page recording God's infinite care for the meanest of His creatures.

**LAMINARIA SACCHARINA**.—The single, olive yellow, semi-transparent

froud, when young, is quite fit for the book of seaweeds, preserving its colour and adhering pretty well to paper. It well deserves its name "Saccharine," from the abundance of sweet *mannite* or manna which is secreted in its cells. This was discovered by Dr. Stenhouse some years ago: he took a quantity of this seaweed and macerated it in a particular way called "digesting" in hot water, which formed it into a brownish sweetish mucilage. When evaporated, it left a considerable quantity of saline semi-crystalline substance. This was reduced to powder and treated with alcohol, by which a considerable portion of it was dissolved. This solution yielded, on cooling, large hard prisms of fine silky lustre, very beautiful, purely white as loaf sugar, and almost as sweet. This is *mannite*, and is, doubtless, much appreciated by the "water babies," and relished by the plumed mollusks who live upon these fronds.

We will close our chat about seaweeds, by giving our young readers a few words of advice as to what they shall do with these sea treasures when gathered from their ocean bed. And in the first place let me advise you to collect as few seaweeds at a time as you can afford, according to your stay in any locality, and to put them either in an oilskin bag or a tin can with sea-water; for these flowers of the sea fade, and even decompose marvelously fast, when roughly handled or carelessly gathered.

The best time for collecting is in the early morning, when, on your return, there is leisure for immediately laying them out. If you come home overtired, and leave them until next day, the chances are that one-half of them will be spoilt. The finest and rarest specimens are found in the lowest-tide pools, or cast up after a storm; but even at high tide the sea-side naturalist will find most pleasant occupation and delightful surprise if with a microscope he investigates those very small specimens which are too insignificant for the lady's album, and finds such form and colour, provision and harmony, as the Almighty Creator conceals from the unseeing eye, to reveal to our patient and intelligent research.

Supposing, however, that we have searched a few tide-pools, and brought home a tangled mass of olive, red, and green seaweeds, we get some soup plates, fresh water, a bit of alum, some camel-hair pencils, and I use needles, mounted on lucifer matches, to assist in disentangling the mass.

Of course we are provided with paper cut into large and small squares; and as much of the beauty of the specimens depends on the quality of the paper, it should be fine, and at the same time stout, almost as good as drawing-paper.

Now float a piece of weed in fresh water; if very dirty or sandy, wash it first, and in renewed water float it on a piece of paper supported by your left hand, whilst with your right hand you arrange the plant in a natural manner, using a mounted needle or porcupine-quill, and thinning out the superabundant branches with a fine pointed pair of scissors. When the specimen is placed as you like it, cautiously raise the paper, that the position of the plant be not altered, and let it rest somewhere with sloping inclination, that the moisture may run off whilst other specimens are treated in the same way.

Do not leave them long thus, for they must be pressed before the paper is dry.

A convenient travelling press consists of two pieces of deal board about 2 feet long and 1 foot wide, a couple of quires of whity-brown paper, and a double strap, such as we use for railway wrappers. Lay blotting-paper between the coarser paper, and you can strap them closely, and carry your seaweed very safely in your hand.

In drying them, you must have old linen or fine muslin, old and soft, to lay upon the weed and prevent its sticking to the upper paper; but do not leave it beyond a day or so, lest it leave chequered marks upon the surface of the weed, especially those with broad fronds.

Experience will give the best lessons. Some seaweeds which are glutinous must not be pressed at all, but laid out to dry; and when perfectly on, then moisten the *under* side of the paper, and give a gentle pressure only.

Others will not adhere to paper, and therefore, when dry, brush them over with a little isinglass dissolved in gin (laid on warm), and they will then be fixed closely to the cardboard or paper.

Another preparation is: 1 oz. of oil of turpentine, in which some gum mastic, the size of a nutmeg, has been dissolved. This gives a gloss to the specimen, and helps to preserve the colour.

You must change the blotting-paper and muslin at least twice during the process of drying larger seaweeds; the smaller ones will be ready in a couple of days for the album, on the second day giving heavy pressure by stones and weights besides the strap.

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## THE AQUARIUM, AND HOW TO MANAGE IT.

What is an aquarium? The word itself is an abbreviation of *aqua vivarium*, and is derived from *aqua*, water, and *vivere*, to live—that is, “water-life,” and in its popular sense signifies a collection of marine or fresh-water animals and plants, kept under artificial conditions, for the purposes of science or recreation, in clear, unchanged water, and supplied as far as possible with the natural requisites of life and health. Such a collection is so full of ever-changing interest and beauty, that no wonder there has been a mania for it; but people have taken to it without sufficient knowledge and perseverance, and so have failed, and discouraged others. After a varied experience of nearly twelve years, I am convinced that a *moderate* amount of time and knowledge will invariably meet with success.

Before stocking and arranging the aquarium, we will trace its history, and see who first thought of collecting and preserving the same animals for an indefinite time in the same water, kept pure by the action of growing plants.

The taste for aquaria among the general public in England began in 1854.



AQUARIUM.

Long before that period, however, men of science had prosecuted various experiments, chiefly with the object of examining in detail the minuter forms of animal life. At the commencement of the last century, Abraham Trembley in Switzerland, and Henry Baker in England, kept (for purposes of observation) collections of small fresh-water zoophytes known as the *Hydra*. Towards the end of the century, Priestley first noticed the fact that in certain circumstances—viz., under the direct rays of the sun—plants throw off oxygen and absorb carbonic acid. Madame Power studied living nautilus in 1830. In 1837, Daubeney and others kept marine and fresh-water animals long enough to determine important points in their nature and habits. In China and in England, gold and silver-fish have been preserved for long periods, not only in ponds, but also within doors. Sir John Graham Dalyell, a zealous\* Scottish naturalist, was accustomed to keep zoophytes, star-fishes, mollusks, &c., in a healthy state for a long time. One of his sea-anemones, *Artinia mesembryanthemum*, was taken from the sea in August,

1823, and is now (in 1867) alive in Edinburgh. What veneration is due to such a patriarch! In all these cases the water was *changed periodically*, thus involving constant expense and labour, and almost an impossibility of keeping sea animals inland. In 1837 Mr. Ward communicated a paper "On the Growth of Plants in Close Cases" to the British Association, and directed attention to the development of animal life on the same principles. In 1842 we meet with the first actual establishment of an aquarium by Dr. Johnson. Mrs. Thynne kept animals in sea-water purified by *growing vegetation*, in London, in 1846; but it was not until 1850 that the idea was properly carried out of "adjusting the relations between the animal and vegetable kingdoms," when Mr. Gosse, as a naturalist, and Mr. Warington, as a chemist, were simultaneously keeping marine and fresh-water creatures in water, without the necessity of changing it, by growing aquatic plants in it; these plants giving out oxygen, which the animals breathe; the animals in their turn giving out carbonic acid to feed the plants; thus establishing the fact that aquatic plants and animals may be preserved in health and beauty for an indefinite period in the same water and in any situation, if certain regulations of light and heat be observed; the water itself being an indestructible medium in which life may be sustained. The Zoological Society of London did much towards giving the matter a wide popularity, by erecting, in 1853, a large public aquarium in the Regent's Park Gardens, under the direction of Mr. David W. Mitchell, aided by Dr. Bowerbank and Mr. E. B. Ward. This aquarium, though possessing serious faults, has given an enduring stimulus to the trade and study of the subject, which has been originated since the first Great Exhibition of 1851.

Mr. W. Alford Lloyd has done much, since 1858, to encourage a better state of things. The best aquarium in the world may now be seen at Hamburg, under his auspices, consisting of thirty-five tanks, in which 20,000 gallons of sea-water have been circulating for *more than four years, without any fresh supply*. The circulation is maintained by hydraulic power, the water constantly flowing in at one end of the tanks and out at the other, at the rate of from 6,000 to 7,000 gallons every twenty-four hours, the stream never ceasing day or night.

Sea-water never deteriorates, and does not hurt by keeping, therefore do not waste it: let it become ever so thick or offensive, it may be retrieved and made fit for use, and any dead organic matter found in it may be rendered harmless, by combination with oxygen. Simply exposing water in open earthenware vessels (metal or wood should not be used) to the air, and occasionally stirring the surface with a stick, will generally have the desired effect; for in all cases the purity of the water must mainly depend upon the amount of oxygen absorbed from the air. If that does not answer, skim the surface well, and strain it through muslin; or, which will be better still, filter it through charcoal: a common flower-pot will answer the purpose, or a bee-glass. Push a cork drilled with small holes, or a bit of sponge, into the hole; then put a layer of powdered charcoal, after that a layer of fine sand, then larger sand or pebbles; fill the glass with water, and suspend it at some height from the ground, so that the water

may run out in slender streams or drops. One of the simplest modes of aëration is to keep a perforated bell-glass hung over the aquarium (without the sponge in the hole), which may be filled at any time. This process of bringing every drop of water into contact with the atmosphere is an effectual remedy for destroying the tendency to putrefaction, as the animal fluids and solids held in suspension, enter into combination with the oxygen of the air, and form the pure innocuous gas called ozone. If the water becomes green, it arises from excessive vegetation, caused by countless spores of microscopic plants. A thick milky whiteness is accounted for by millions of infusoria circulating in the water. Both these evils are the effects of excessive light and heat, and, unless checked, will increase to such an extent as to render the water opaque and the objects obscured. Remove the cause and you will cure the defect. Syphon off the water, cork it up in stone jars, keep it in a cool place, and in a short time it will become clear and colourless, for darkness is opposed to life. Thundery weather often causes a cloudiness which is most difficult to remove. Constant aëration seems the best remedy; afterwards put the water aside if necessary in earthenware jars.

Again, the milkiness indicates the presence of decaying animal matter—some creature has died in a recess or corner; search it out, remove every particle of dead matter. A glass tube is most useful for the purpose; it will take up the smallest portions of dirt or semi-fluid impurity which may be causing a blackened patch of sand or stone, emitting the most objectionable odour of sulphuretted hydrogen gas, which will quickly spread and contaminate the whole tank, unless the evil be taken in time, the patch gently stirred and watched daily, when it will generally disappear without the need of changing the water. *By stirring up the blackness*, syringing, or aërating the water in any possible way—that is, giving a supply of an extra amount of oxygen, which will combine with these poisonous gases, and, so to say, *consume* them—decomposing organisms are made to combine with oxygen quicker at a low temperature than at a high—the cooler the water, the greater the supply of oxygen—so much the quicker are these poisonous hydrogen and carbonic acid gases decomposed and rendered harmless. *The clearness of the water* is universally the best test of the perfectly healthy state of the aquarium: it should not be merely a dull and insipid clearness, but a transparent, sparkling brilliancy, which can only be given by the presence of an abundance of air in solution. A large supply of air-bubbles or oxygen is, therefore, of the first importance. This may be obtained in various ways, —by means of a syringe or an air-pump in small aquaria, or by tides, streams, or fountains in larger tanks; but as these are cumbrous and expensive, and sometimes impossible, it is not desirable to depend entirely on artificial aëration. Nor is this, as we have seen, necessary, if plants be grown with the animals, in sufficient quantity to keep up the supply of oxygen which they require. Living animals absorb oxygen, and exhale or throw off carbonic acid gas. By a like continuous process, plants separate the carbonic acid gas into its constituent elements, carbon and oxygen; they absorb the carbon, which is converted into their vegetable tissue, and in their turn

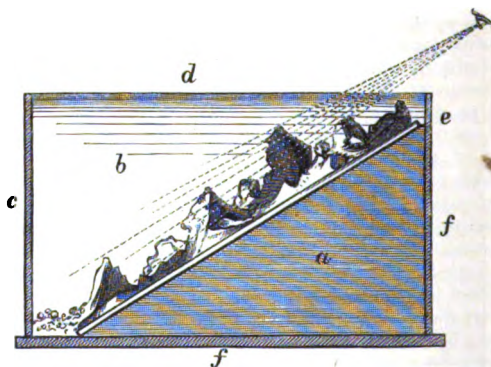
throw off the free oxygen for the animals to breathe. The principle of the aquarium is thus the principle of compensation or balance between animal and vegetable life, each producing the essentials of life for the other; and as long as this balance is preserved, the two can be kept living together in clear, colourless water, for any length of time. But what is a balance at one time will not be so at another. Fish that will die when the water becomes unnaturally heated, will live in the same temperature, provided the water be well oxygenated. Should the vegetation be increased for the sake of the oxygen it supplies, the weeds will grow so fast and so rank as to obscure everything and turn the water green; and as all plants decay periodically, and break off and look unsightly when dead, the less vegetation there is the better.

Decaying vegetable is not so disastrous, however, as decaying animal matter. It resolves itself into a substance termed "humus," somewhat of the nature of charcoal, and quite harmless; but it is at any time a dirty-looking, brown, loose substance, which is not easily removed, and constantly liable to be stirred up. There should be an endeavour so to regulate the light and temperature, that only just as much vegetation is produced and maintained as will keep the water clear and unchanged, and the proper number of animals in a vigorous state. As the animals are always the great point of attraction, and the desire to add to their number ever increases (especially in keeping fish, shrimps, &c., and the more highly organized animals), it is an immense advantage, when artificial aëration can be depended on, to supply oxygen for the use of the creatures. "But vegetation cannot be dispensed with, as it alone decomposes the poisonous carbonic gas given off from the animals. Atmospheric air without plants cannot perform this office."

It is always desirable to spread the water over as large a space as possible. The greater the surface exposed to the air, so much the more oxygen is absorbed from the atmosphere. Flat shallow vessels are therefore the most economical. The value of water depends not so much on its bulk, as upon the advantageous distribution of that bulk over large spaces. Thus, whilst a glass tank 20 inches high, 5 inches broad, by 10 inches wide, would support five animals in a miserable condition, a tank 20 inches wide, 10 inches broad, and only 5 inches deep, would maintain twenty animals in a flourishing, healthy state, even with less vegetation, because a larger surface would be exposed to the air. Lloyd's slope-back tanks are on this account by far the best manufactured; in fact, they are the only ones to be recommended for strength and economy. Time, labour, money, and anxiety are saved by their use. After many years' trial, they are proved to be the most lasting and satisfactory; they enable the greatest number of animals to be healthily maintained in the smallest space, and therefore at the least expense, because the water is advantageously *spread out*, not *piled up*, and every portion is turned to good account. One great secret of success is the "dark chamber" principle. Every tank is provided with a sloping back, upon which the rockery is cemented, for the accommodation of animals, plants, and that portion of water visible to the spectator. The under part contains water



in a state of *darkness*, and therefore *clearness*: the two are made to communicate by several small holes, so that the circulation of water is constant, though slow. When we remember that an aquarium is a limited portion of unchanged water, containing animal and vegetable life, which must necessarily throw off decaying matter, the extreme value will be felt of a reserve store, within the tank itself, of cool, clear water, which, being free from corrupting animal and vegetable matter, keeps up a constantly purifying influence upon the fluid in front. Should the water in the outer chamber become foul, green, brown, or white, the pure water behind may be made to take its place more actively by a small pump or syringe inserted in a hole left in the upper corner for the purpose. This hole must be always carefully covered with a loose bit of stone, lest any animal should enter, and destroy the object of the under partition, which is, "to allow no organic



matter to enter, and to let no light be admitted to it, so that any water placed there, rapidly becomes deodorized and colourless." This arrangement is, indeed, next best to having a constant stream in an aquarium,—so Mr. Lloyd told us in his pamphlet on "Aquaria," published in 1861.

The engraving is a sectional view of one of his slope-back tanks, "the invention of which has largely helped to revolutionize aquarium science."

*a* is the dark water-chamber; *b*, aquarium proper; *c*, plate glass front; *d*, glass cover in two pieces, fitting in a groove on the top, leaving an inch of open space, to allow a free current of air; *e*, hole for the syringe; *f*, bottom and back of slate; the two ends are of the same material, thus giving strength and solidity to the whole, and, being opaque, they prevent the admission of light through the sides.

Aquatic organisms require modified light, always obtained through the surface. Seas and rivers are illuminated in this way, and as our object is to follow Nature as closely as possible, those tanks which have three sides opaque, and one only of glass (reserved for the observation of the contents)

must be better than rectangular tanks with four transparent sides, or bell-glasses, which reflect the light from all quarters, besides distorting and magnifying the animals. Propagating-glasses, and others of tall vase-like shape, are useful for containing specimens that are often wanted to be moved; but, besides admitting too much light, and thus causing too quick a growth of vegetation, they are liable to break. The pressure of the water is often uneven, the rock-work may slip and cause a fracture, or even a grain of sand will make a small scratch, ready for the first shake to enlarge into a crack: a general smash is the inevitable consequence. Shallow vessels are now made, the proportion of 14 inches to 5 inches. The best situation, even then, is in shady corners or between windows. *Direct, cool daylight*, but never sunlight, is the best for all aquaria. A little winter sun will not be injurious, but as sunlight is never *necessary*, and often *dangerous*, the less of it the better.

The choice of aspect is of great importance. The rule is, to choose such a situation as will command light enough to allow the animals to be clearly seen, and cause the oxygen to rise in visible bubbles from the vegetation, but which will still permit that light to be lessened when not wanted. "The best situation for an aquarium is close to the window of a room having an aspect facing the north or north-east; or in any other place which is cool in summer, and which permits the access of daylight (more or less shaded) to the tank, but which excludes sunshine." When such conditions cannot be commanded, blinds or screens are desirable for regulating the light, and the tank itself should be covered with dark blue tissue-paper laid over the glass top (with which every aquarium should be provided), to prevent evaporation and keep out the dust, which, though not actually hurtful, is at least unsightly.

One of the great advantages of shallow tanks is the *direct* view of all the animals from the top. They can be looked *at*, and not *through*, and easily reached for feeding and cleansing purposes. The sloping back also affords the creatures an opportunity of choosing any depth of water: for instance, antheas will almost invariably climb to the top, and remain almost *out* of the water, whilst other anemones never move from the bottom.

A ray of sunlight cannot fall on any substance without leaving some impress. The action of light upon water causes it to develop plants of certain orders, according to the duration and intensity of the light.

Fill a glass jar with sea-water, which contains no visible organic germs, put in it a few stones, cover it with glass, and place it in a window. In a week or so the sides and bottom will be found covered with minute plants, whose presence can at first only be detected by the microscope, or by the minute bubbles of oxygen which are known to rise from growing vegetation. These plants in their turn die, and give place to other and higher forms of vegetation. Place the jar in a cool cellar, and it will take months to produce any growth; coolness and darkness (or rather, obscured light) being unfavourable to it; but put the jar in a hotbed or a greenhouse, and a few days will suffice to cover rocks, glass, and even the water, with palpable vegetation, because moisture, light, and heat are conducive to a rapid production of

vegetable life. Wherever light, water, and air are brought together, plants are sure to appear spontaneously. This is found to be the case when artificial sea-water is manufactured from distilled water and the proper proportion of salts; but of course a longer time must be allowed for germination.

Mr. Gosse has found artificial sea-water, the salts for which can be obtained at the chemist's, answer for aquarium purposes. Incipient animal and vegetable germs exist everywhere by millions—floating in the air, suspended in water—ever ready and waiting until suitable conditions and resting-places call them into visible life. All rocks and stones are not equally fertile: mica schist is much used and recommended for aquaria; artificial rocks are also made of Portland cement, and should be artistically and effectively arranged. The value of *spontaneous* vegetation cannot be overrated: in this manner *only* can be obtained with certainty the plants which are of real service in aquaria. At first they are very small, and humble, and mossy; but they are soon followed by others more highly organized—some, thick and dense filaments; others, long or short, generally bright green; sometimes brown or purple, and of a velvety texture. It is most interesting to watch the succession of vegetation; but in what order it follows, and its different kinds and qualities, depend much upon the season of the year, aspect, light, &c. Whatever it is, it possesses the advantage of being *indigenous to the aquarium* itself: the very fact of its growing there proves that it at least has met with favourable conditions. Moreover, fine weeds or *confervæ* are the most prolific in the evolution of oxygen, and are invaluable also in supporting the lives of myriads of infusoria which serve as the only food for many animals.

Plants first; then animals. Every tank should be allowed to remain some weeks, or even months, for the development of spontaneous vegetation, so that the water may become filled with microscopic animalculæ, and fully charged with oxygen, for the support of the general stock of animals, which should not be introduced until such provision is made.

So much for the scientific part of the aquarium. Now let me give you a little of my own practical experience. Possibly a few hints may be gathered from it which may save much needless vexation and anxiety, and help those who are discouraged to persevere and prosper. The best knowledge of all is, doubtless, gained through experience, and many are the reverses, accidents, and perplexities that the beginner will have to go through before success rewards her efforts. She must be willing to follow Nature humbly and patiently, to study her laws, and also to learn from those who have gone before. Above all, she must love the pursuit for its own sake; not merely take it up as a fashionable toy, following the mania as long as it may seem the "correct thing," and then neglecting and destroying that of which she is tired. All these organisms, low as they are, are the works of the great Creator, sent for some useful purpose—be it to glorify Him, to enjoy their own existence, or to give pleasure to man. You have no more right to take the life, or cause miserably to perish through carelessness, the smallest fish, than you have wantonly to starve your canary or favourite dog.



LYME REGIS, WHERE THE "DAISIES" GROW.

"Evil is wrought by want of thought as well as want of heart."

Zoophytes (animal plants) may not feel as acutely as higher organisms; but the bare thought of a lingering death should at least bring the wish to make their artificial conditions of existence as healthful and like the natural ones as possible, and prevent us from following the example of a certain young lady, who said, "Oh, yes! we once kept the *loveliest* anemones, at Weymouth, *in tumblers*. Such beauties!—they almost filled up the glass; but they shrank down, so we changed the water, and gave them fresh water with salt in it; but they *would* die." Now this, in all probability, was cruelty through ignorance. Sea-anemones are got at watering-places, just like any other flowers or fancy articles, by any one who will buy them. People forget that these are *living* flowers--that they want a properly furnished home to receive them, and unless that is prepared they will surely come to an untimely end. Nor is this all. Demand creates a supply. As long as people will buy live animals, just for the sake of buying something, or because they

are pretty, so long will the "grubbers" collect them for the sake of the money they will bring. "Grubber" is the name given by the fishermen to any of their comrades whose special business it is to dredge, trawl, chisel, search for, and collect marine stores for aquarium purposes. Most interesting and intelligent men they are too, generally. For instance, William Jenkins at Tenby, and Jonah Fowler at Weymouth, who love and cherish their anemones almost to the point of infatuation, calling them all by long Latin names with a provincial accent, which would amuse you more to hear than to see them written.

Both these collectors are in the habit of sending good healthy specimens and varieties of anemones, *Serpulæ*, madrepores, &c., carefully packed in fresh seaweed, to almost any part of the kingdom, at the rate of 6d. each. The most extensive collector is, I believe, Mr. John Thompson, of 11 York Place, Southend, Essex. Mr. Edward Edwards, of Menai Cottage, Menai Bridge, Bangor, North Wales, also sells some very fine anemones, as well as tanks with the dark water-chamber, like those Mr. Lloyd used to make. Then there is Pile at Torquay, who sells specimens from 2d. up to 4s. each, and many others; in fact, a watering-place hardly seems complete without one of these vendors of marine life. Yet it is strange how few aquaria in this country (no public ones, as far as I have seen or heard of) are managed on the right principles. Those in the Crystal Palace, Zoological Gardens, Museums, &c., are generally allowed to be failures,—hundreds of pounds are spent on them without a corresponding show in return. Could we only follow the example of our neighbours the Germans and French, we might have something not only worth seeing and preserving, but that would tend to the furtherance of scientific research.

The great charm is in collecting specimens for yourself. Buy only as a last resource, or to get varieties that are otherwise out of reach. An animal that you have toiled and struggled for is held in much greater estimation than one for which you have just "paid 2d. and nothing more." Small beginnings make the best endings. I advise all novices to be content with a little at first: a few smooth anemones, antheas, and daisies afford endless enjoyment. Feel your way; add to the number as opportunity offers, and each new variety will be more highly prized than its predecessor. Do not bring home more than you want: one flourishing *Crassicornis* is better than half a dozen starved ones. Not only the choicest anemones, but even the common ones, are sharing the fate of our rare ferns, and becoming exterminated in many places.

My first aquarium, started in 1855, was a modest little attempt, but yet successful, inasmuch as the water maintained its transparency, until an accident dashed my hopes—and water—to the ground. It was one of those little bell-glasses, pretty to look at but liable to break, holding about two quarts, inverted in a vase; mud at the bottom, in which was planted a root of watercress, another of water forget-me-not, and a little starwort; a few stones from the brook completed the whole. It was our delight, on half-holidays, to go out and grub for caddis-worms' *larvæ*, and tiny fish (which always died, of course, the glass being so small), and, last but not least, tadpoles. I do

not know of anything more interesting, for the river aquarium, than to watch the metamorphosis of the tadpole, from the spawn to the fully-developed frog, toad, or lizard. The eggs may be found in ponds or ditches during the months of March or April. The following is a drawing of spawn found on the 4th of March, showing the different stages of the larvæ form :



First the external gills appear, tiny tufts on each side of the head ; then two legs sprouting near the tail ; after that the fore legs make their appearance, when the tail is gradually absorbed into the body, and the little fellow hops nimbly to the nearest leaf or rock, and finally quits the water altogether. In every form these erratic "wriggle-woggle-bobbas" are as active as interesting ; not the least so as a microscopic object, the circulation of the blood in the tail being a most exquisite and wonderful sight.

It is a popular delusion that tadpoles do not develope in the dark. I have found it otherwise ; having tried the experiment of keeping some in an earthen vessel in a dark cupboard in the cellar. They most surely did grow, first one pair of legs, then another ; finally they took leave of their tails, and hopped out of water just as methodically as their brothers aboveground, only they took some months longer about it. The rapidity of the transformation seems to be in proportion to the light and heat. One thing puzzled me, and has often made me wonder since, "Has any one else met with a similar instance?"—a tadpole *remained a tadpole for a whole year* ; nor was it until

the second summer that it began to show any sign of legs; all four were at last fully developed, and now it is preserved in a bath of spirits of wine as a perpetual wonder. *Why* this particular tadpole should take exactly a year longer to hop into a frog than his brothers, who passed the stages of infancy, and learned to walk (or rather hop), in the usual time and manner of orderly frogs, I cannot tell, for they lived all together in a shallow brown pan in an east window, with plenty of starwort on the top of the water, and covered with perforated zinc.

Arrived at maturity, frogs and toads are amusing pets for a rockery, if you can manage to tame them; and useful, at least (if not ornamental), in clearing away grubs, blight, &c. One of my fern-cases forms the home of a pair of natterjacks—aristocratic toads, not common ones, coming from Winslow Heath; children—and some grown persons—are delighted at seeing me feed them, which I do by holding a fly in my fingers, at which they look steadily for a minute, then out comes a tongue 2 inches long, and the fly is gone in no time.

Where amphibia are kept, the tank should be provided with a rockery for the animals to crawl out upon (tortoises always sleep out of water); it should also be secured by a cover of glass or gauze, for I *have* known gentlemen object to lizards taking an occasional promenade round the parlour. They enjoy a walk as well as any one, so I sometimes indulge them with a stroll on the lawn.

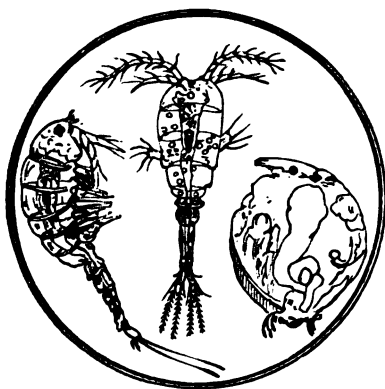
River aquaria are managed on the same principles as marine, but bear more light with impunity. *Vallisneria spiralis* is the best weed to import for them, for, being a native of the tropics, it will bear forcing all the year round. It has flowered and flourished many years in my glass. You may see it luxuriating out of doors in the Crystal Palace ponds. For exhibiting the circulation of the sap, it is a very wonderful and popular subject with the microscope. Other flowering plants, such as water-snowdrops, frogbit, the ranunculus, &c., are pretty for a season, but involve trouble, and for a time need rest and other requirements which an aquarium cannot give.

For the last eight years I have managed to maintain a large bell-glass as a fresh-water aquarium. Though affording much variety and pleasure, it has not been without corresponding anxiety and trouble; the water has become turbid, and been changed many times. The same water has now remained for a year and a half, and is still perfectly clear, perhaps because the animal life is reduced to a lower rate. *Vallisneria* should be planted in the sand or coarse gravel, which is the best foundation; upon this is built a rockery of clinkers, which is soon covered with a confervoid growth of fine green threads. I find clinkers answer capitally, and always use them when rock-work cannot be cemented. They are easily obtained, and are light, picturesque, and afford numerous crannies and holes in which the animals love to hide. Clinkers should be left soaking in water for days, then well washed and scrubbed. Scrupulous cleanliness is of the utmost importance. The glass must always be well washed, and the sand thoroughly rinsed and stirred at the pump until the water runs away quite clear.

Sticklebacks are entertaining and audacious little fellows, easily tamed.

They turn of a bright red in the breeding season, when you may think yourself fortunate if you succeed in watching a pair building their wonderful little nest of weed, in which the female deposits her spawn, the male mounting guard over her the while. They require a tank to themselves, being the most mischievous little things imaginable, as I learned to my cost, for they waged deadly war against tadpoles and a host of small fry, and did not leave a single gold-fish without nibbling a handsome fringe all round his tail and fins.

Shallow rivers and ponds, canals, and particularly ditches, are prolific of animal life, such as fishes, bivalve and univalve mollusks. For obtaining the latter, use a hand-dredge or scoop, and scrape along the mud at the sides and edges. The large Swan Mussel is a handsome thing, so is *Paludina vivipara*; this, with *Limnea stagnalis* and the *Planorbis*, are the best snails to keep. I have a glass containing them alone, teeming with multitudes of young, from the egg upwards.



WATER-FLEAS.



EUGLENE.

A friend has favoured me with the following microscopic particulars:

"Any one in possession of a fresh-water aquarium cannot fail to be curious about the smaller creatures, probably specks just visible, or perhaps invisible, to the naked eye. They come unbidden in myriads from the ponds and rivers whence the water is drawn. The sun is constantly hatching them from unseen eggs; but they are not for that the less wonderful, and the microscope interests us intensely in their development, forms, and ways.

"A common form of animalculæ just visible to the unassisted eye is the Water-Flea, of which there are said to be fourteen varieties. The sketch shows two of these varieties, highly magnified; a side view of the centre creature being shown on the left. They are covered with a hard transparent



shell, within which the creature lives. It is curious to see the palpitating of the crystal heart and the action of the digestive organs. They swim with great rapidity and a jerking motion, being provided, like shrimps, with a number of paddles or legs. The beautiful fern-like appendages to the tail are organs for the purpose of respiration. Brown round eggs are often dispersed over the interior of the body of the female, waiting their time of incubation, and the mother carries them like marbles in a bag. A striking feature of these water-fleas is the bright red eye or eyes, which are of considerable size, and appear through the microscope as magnificent rubies.

"My other illustration is one of the forms of animal life most nearly approaching to vegetable existence. The creatures invisible to the eye are here shown magnified 400 diameters. They appear like bladders that twist, twirl, or swim in any direction, and squeeze their figures as space requires. They are clear towards the tied-up part of the bladder, with a dark eye-spot; but the larger portion is mottled, and speckled with emerald green. They are not known to have a mouth or any other organ; but, in order to eat, they wrap the desired morsel in their facile body, and, if not palatable, they turn inside out, to get rid of it again. These creatures are found in the refuse of any aquarium, and their scientific name is *Euglenæ*."

The autumn of 1856 saw my first marine aquarium, stocked from Black Rocks near Bridport Harbour. From that time to this I have never been without fresh and sea-water aquaria in some shape or way, forming a continuous series of never-ceasing, ever-increasing interest. Failure and disappointment only stimulate me to renewed efforts; still not a few misfortunes have befallen me: let us hope each has turned to good account, and points a warning for the future. First, a thunder-storm turned the water white. Secondly, fish and shrimps jumped out, apparently boiled. Thirdly, special pets died the morning after a party. Fourthly, the sand became black. Fifthly, stones fell down and broke the glass. Sixthly, creatures devoured or killed one another. Seventhly, weeds died. Eighthly, *conferva* choked the tank. Ninthly, the water is often changed. Tenthly, the climax was reached by the bursting of the largest bell-glass, in a most mysterious manner, at six o'clock in the morning: all I know is that on the drawing-room carpet was a heterogeneous mass of frightened shrimps, fish, crabs, anemones, star-fish, sand, stones, glass, and ten gallons of sea-water! A coroner's inquest was held on the remains; the verdict returned (for want of further light on the subject) was "Spontaneous combustion!"

Now *you* stand a much better chance of success. Have we not learned how to avoid these calamities?

1. Do not over-stock the tank. Keep the animal life at a minimum rate, leaving a margin for emergencies.

2. Aerate the water in hot weather, always remembering to syringe *gently*, so as not to disturb the animals or to stir up the sediment. Extreme cold also kills delicate animals.

3. Dissipation does not agree with "water babies." If you have an evening party, take them out of the room; or, if that be impossible, and the room becomes heated with fire and gas, keep a wet cloth round the

tank, throw open the window the last thing at night, give a dose of fresh air and a few strokes with the syringe.

4. Watch the sand well: do not allow any burrowing creature to go away into a cranny to die. Remove the first speck of black or the least sign of white film that sometimes spreads over the bottom.

5. Cement the rock-work together when possible, or use clinkers. Portland cement is sometimes employed, or white lead putty, covered with shellac dissolved in naphtha; or, better still, use a compound of red and white lead, litharge, umber, and boiled oil.

6. Make a division of species. A small tortoise will kill a large gold-fish; fish eat tadpoles; tadpoles eat anything; sticklebacks eat (almost) everything else that does not eat them; crassies and antheas sting and eat fish, shrimps, &c.; shrimps eat star-fish; star-fish eat young anemones; and so it goes round.

7. Never import plants.

8. Give little light: shade with blue blinds or screens, and cover the tank entirely whilst the sun is out.

9. Choose the coolest and shadiest aspect available; north is the best, or even underground. Keep the temperature from 45° to 60° Fahr.; but with a stream, fountain, or motion, 70° or even 80° need not be feared. Avoid sunshine, and remove any dead or decaying matter. Keep a stick of charcoal in the water; it acts as a deodorizer or purifier.

10. Never use a bell-glass of great size, but employ shallow vessels, and tanks with only one side of glass and the other three opaque.

Five or ten minutes' daily attention, paid regularly, is enough to keep any well-regulated tank in order. Besides this, I give to mine about an hour once a week, when I skim the surface with a cup, strain it through muslin, add the amount of fresh water necessary to supply the loss by evaporation, mix the fresh well with the salt water, and, before returning it to the tank, rub the glass side or sides, to keep down the growth of weed, which is sure to obscure the glass unless frequently rubbed off. A bit of sponge or rag tied firmly round a stick answers the purpose. Pump-water must be added periodically, to prevent the water becoming too salt. A pair of Specific Gravity balls price 1s., one to sink and one to float, are useful to determine the density; or you can mark the glass, and always keep the water up to the same level. A camel's hair brush is desirable for removing any small particles, agitating the surface of the water, and for brushing mucus from the anemones, &c.; also a small pair of wooden tongs for feeding purposes. A small hand-net will be useful for removing specimens. Never handle or tease the creatures; when they are once established, "rest and be thankful."

For those who are collecting, it is well to provide a dip-net, hammer and chisel, basket or tins, several sizes of wide-mouthed bottles and phials for the reception of the different sorts and sizes of animals.

Many of the crustaceans, *Annelida* (worms), *Echinodermata* (star-fish, sea-eggs), *Mollusca* (soft-bodied animals), *Zoophytes* (sea-anemones and corals), travel best in fresh damp seaweed. To pack the animals, first put a layer of sea-lettuce, then one of oar-weed. Fish, shrimps, and delicate animals, such

as antheas, should be carried in water. Always cork or cover down vessels containing water; the want of this precaution cost me the only sea-horse I ever had, kindly sent through some friends in Jersey. The intelligent little creature was upset at the station, and never recovered the shock. It is quite sufficient to lift the cover occasionally, to give a fresh supply of air. Animals should never be put immediately into the tank, but should remain for a day or so in shallow stone pans, to season. Deep-sea creatures must be dredged for. Wickered jars are the best for the transmission of small portions of water; for larger quantities use casks, perfectly clean and new. Sea-water can be bought in London, or the captain of any vessel going down the Thames would fill a cask of pure clear water far out at sea.

For those who wish to go deeply into the natural history of the subject, there are many able books. Perhaps Mr. Philip Henry Gosse has done more than any other living naturalist to popularize the aquarium, by his delightfully illustrated books, "The Aquarium," "Devonshire Coast," "Tenby," and lastly, "Actinologia Britannica," in which seventy-five British sea-anemones and corals are shown: in 1851 not more than twenty-one species were known. For sound practical information on aquarium-keeping Mr. W. Alford Lloyd is the first authority, having made it his sole occupation and study for a great many years. His Supplement to "A List of whatever relates to Aquaria" is in itself a summary of solid instruction. Anything from his pen is as deeply interesting as it is truthful, for he never writes but from experience. Speaking of prepared food, Mr. Lloyd says:

"This food, being concentrated and dried without cooking, is not deprived of its nutritive portions, while, being in a small bulk, it does not cause the water of aquaria to become foul, as ordinary meat will. It is adapted equally well for marine and fresh-water animals. Fishes, prawns, crabs, beetles, &c. may be fed twice a week, each creature according to its size having a morsel given it varying from the dimensions of a pin's head to that of a pea. Anemones and madrepores should be fed with similar proportions not oftener than once a week; these, however, should have the food placed gently in the grasp of their tentacles by means of a pair of forceps. If not thus fed regularly, these zoophytes gradually diminish in size and beauty, and are then more difficult to be induced to take food at all. Most crabs also require their meat to be brought near them.

"Among all animals it will be found that different species are very variable in their appetite, and that some are sparing feeders permanently. Some live on the vegetable matters which are always to be found in an aquarium, and others, such as *Serpulæ*, tunicated and bivalved mollusks, &c., cannot be fed at all by hand, their mode of obtaining food being the involuntary act of straining and collecting particles of matter suspended in water, which is made to pass into their bodies in a stream.

"In all cases it is very important to see that the food is actually eaten, and that any rejected portions be carefully removed within a few hours."

I use beef, either raw, or cut in small pieces and dried by fire or sun, when it will keep good for many weeks. W. A. Lloyd now prefers fresh lean beef to dried meat, and mussel or oyster flesh to either. Also raw fish flesh.



Fig. A.

Fig. A is a drawing of one of Lloyd's slope-back tanks, 24 inches long, 16 inches broad, 7 inches high, sent to me on the 2nd of April, 1861; since which time (six years ago) the water has never been taken out but once, and then not to be changed. It answers admirably. The last time I examined my tank, I counted sixty-three animals appreciable to the senses,\* including snails, oysters, chiton, limpets, mussels, *Serpulæ*, *Sabellæ*, *Nereis*, one "sea-serpent" 2 feet long (I have not the pleasure of knowing his name), madrepores, and thirteen varieties of anemones. The daisies (*Sagartia bellia*) reign supreme: some of them have more than doubled their size during the last five years. They certainly are more prolific and hardy than any others, or perhaps my situation exactly suits them; many hundreds of them grow in the tank. The largest I have reared measures 2 inches high and  $1\frac{1}{2}$  inch in diameter, when fully expanded. I chiselled most of them out of the blue lias rocks of Lyme Regis. I can count at least six sorts of indigenous green seaweeds, and several red sorts growing on *Serpulæ* groups. But my chief delight is in the *Ascidians*, *Hydras*, &c., that seem to grow spontaneously, especially a lovely group of *Clavelina lepadiformis* that has lately appeared on the mica rock itself.

Fig. B is a rectangular tank which was established in May 1859, and has had the same water in it nearly eight years. Surely I ought to love it very much! It is like a refractory child, from the infinite trouble it has given me. The water has been in and out, rocks, sand, and glass scrubbed and washed. It took me just six years to conquer it; and this is how I manage it. I cover three sides with a dark blue silk curtain, and often stand the remaining glass side against the wall, and keep fewer animals. The last two summers and autumn the water has *not* become thick, as it always used to do when more light was allowed. It stands in a north-west window, with a

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The hard frost of last winter (1877) killed several delicate anemones, and some madrepores that had lived with me four years; also my very tame gobies in the other tank.

clinker rockery, not cemented, and contains fish, eels, shrimps, prawns (not pale, sickly ghosts, but exquisitely tinted), crabs, and a few harmless actinia.

It is impossible to give full information on every point in so limited a space. I shall only add, make the most of your resources, from a finger-glass to a 200-gallon tank. Try and find out of what your situation and receptacle are capable, and *do that well*; the aim being the greatest happiness to the greatest number in the smallest possible space. A little daily attention, with patience and perseverance, is sure to be rewarded.

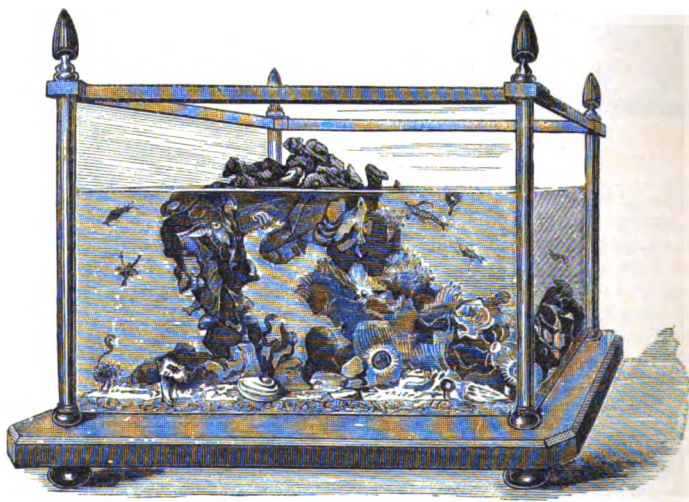


Fig. B.

If extremes of temperature are avoided; a cool situation chosen in summer; and care taken to secure spontaneous vegetation, cleanliness, judicious feeding, and the removal of rejected or undigested food, there need be no deterioration—the first expense for animals may be the last.

Remember that, next to the right proportion of the tank, the management of the light is everything. Light begets life; life begets love. May the light of good-will, shining on "these Thy lowest works," Father of all! beget in us, who are "fearfully and wonderfully made," a higher, deeper love and adoration for Thee, the Author and Creator of all things.



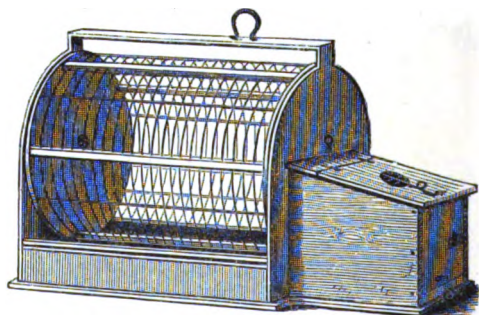
## DOMESTIC PETS.

This is a very comprehensive title, and might fairly be supposed to comprise Ponies, Donkeys, Dogs, Cats, Rabbits, Poultry, and Pigeons; but this article will be confined to animals kept in the house, and will especially relate to those which may be legitimately called Pets, the care of them devolving entirely upon their young mistresses. Out of door pets must necessarily be left, in a great measure, to the care of servants, and cannot be so essentially home friends and playfellows.

Squirrels, Dormice, and White Mice are sometimes kept in captivity by English girls, whose lives are chiefly spent in towns, and who have no knowledge of the wild frolicsome creatures in their native haunts; but they appear to lead very unnatural lives in confinement, and are not very desirable pets for the house: it is difficult to keep their cages quite sweet and clean. All may be domesticated, however, and are, I believe, capable of attachment to their owners. I have never kept any myself; but my brothers had Dormice from time to time, and several small families were born and brought up under their care, but most of them came to an untimely end.

The Squirrel seems so delightfully free and happy, playing about on the tops of the tallest trees in the woods, launching himself boldly into the air, and taking tremendous leaps from branch to branch, that after seeing the pretty little creature at his ease, one does not feel inclined to deprive him of the liberty he seems so thoroughly to enjoy; but if he is captured, his life ought to be made as happy as possible, and he should be allowed as much exercise as he can have in the house. His cage should be at least 3 or 4 feet long and 3 or 4 feet high, and instead of the revolving cylinder, which is very injurious to

the little prisoner, he should have a good-sized branch of a tree, to form perches for him, and be able to frisk about at pleasure in his little parlour. A little sleeping-box must be attached to this, with a door at the back, and the board forming the floor should be drawn out like that of a bird-cage. Every part of the cage must be kept as clean as possible, and the moss and cotton wool, which must be put into the Squirrel's bed-room, must be changed nearly every day. The active little creature does not often live long in confinement; but if taken young, and very carefully managed, it may become a very tame and a very engaging pet, and may sometimes be trusted to frolic about out of doors when tame enough to return at his mistress's call. His cage should, however, be lined with tin; for he is apt to gnaw the wood with his sharp little teeth when impatient of confinement. He should be fed on nuts, almonds, filberts, beech masts, walnuts, acorns, wheat in the ear, and fir cones; and he is fond of milk, cold tea, and bread and milk. A little bit of



ORDINARY SQUIRREL'S CAGE.

boiled potato, and even a tiny morsel of cooked meat, may be given as a treat, and a stale crust of bread to gnaw. All creatures require variety in their food, and in his wild state the Squirrel gets animal food by robbing birds' nests of their eggs occasionally. He lays up a store of food for the winter in various holes and crevices, and is much too acute ever to put by a nut in which a maggot has been, or to miss the place where his treasure is concealed, even when several inches deep of snow cover the ground. The female is a very affectionate mother, and will remain with her young in the nest even while the tree in which it is is cut down, or will carry them, one after another, in her mouth, to a place of safety. She generally builds on the topmost branches of the fir tree, and the nest is made of dry grass and sticks, very slightly yet firmly put together, and lined with fur, which she scratches off her body before the young ones are born. This is generally in the summer, and the young Squirrels remain with their parents till the following spring, when they are able to manage for themselves. They have a substantial winter's nest, to which they appear to add every year fresh



layers of hay and moss, to make their habitation more and more warm and comfortable. I have been told that the best time to buy a Squirrel is at the end of September, when it is fat and vigorous and its fur is in good condition; but it is never safe to purchase those which are sold in the street as "wonderfully tame," and which will allow themselves to be handled by a stranger, and pulled about, without showing any disposition to bite. The probability is that the poor little creatures have been stupefied by some drug, and that they will either recover their natural ferocity in a few hours, or die—poisoned by the narcotic which has been given them.

The Dormouse is very like the Squirrel in many of its habits: it lives upon much the same food, and is a hibernating animal too, laying up a store of eatables for the winter, and passing the greater part of the cold months in sleep. In a cage it is not seen to advantage: throughout the



DORMOUSE.

day it is generally rolled up into a little soft ball of fur, fast asleep, and its architectural talents are quite thrown away. It is in its wild state a very clever nest-builder, and Mr. Wood gives a most fascinating description of a Dormouse's nest, which he found in a hedge 4 feet from the ground, in the forking of a hazel branch, the smaller twigs of which formed a palisade round it. The nest itself was 6 inches long and 3 wide, and constructed of grass blades and leaves of trees. The blades of the sword-grass were chiefly used, and these were twisted round and between the twigs so as to form a hollow oval nest. Finer sorts of grass and the slender stems (not bigger than thread) of delicate climbing weeds, interwoven with the leaves of hazel and maple trees, were used for the bottom of the nest; the entrance to which was most ingeniously concealed by long blades of grass placed across it in such a manner as to spring back to their places, after having been pushed aside to admit the Dormouse into the nest. This was never used as a store-house: the little creature had its winter provisions carefully hidden under a thick branch in the neighbourhood of the nest. While hibernating, the



Dormouse does not seem to require food; but it wakes up occasionally during the winter, perhaps when a warm sunny day calls it into life for the time, and then it takes food before it rolls itself up and sleeps again. It requires a good deal of warmth, and must have soft hay, moss, and wool given it to form its bed, and it does its best with these, but cannot construct anything very beautiful out of them.

If I had a tame Dormouse, I think I should try to provide it with materials which it might be induced to use for the construction of a nest like that described by Mr. Wood. The Dormice my brothers had were kept in a cage made for Dormice, wired at one end, with a little compartment at the other boarded in, the door of which was pulled up and pushed down at pleasure, so that the little creatures could be shut into their bed-room when the outer room was cleaned out. Even with this precaution they were continually getting out of the cage, they were such nimble little animals, and the whole house was often scarched in vain for the truants. At last, perhaps, they would be found in the fold of a curtain or underneath the cushion of a sofa. Sometimes a worse fate befell them, and they would creep under the cushion of an arm-chair, and get crushed to death, or be trodden underfoot, or be squeezed under a door in trying to escape. They sleep during the day and come out in the evening, so that they must be provided with food as soon as it grows dusk; and if they have a large cage with sticks placed across it, they will gambol about very merrily in the open part of it as soon as night approaches. Their food should be varied as much as possible: they will eat nuts and almonds, pease and beans, canary seed, and various other grains; and they are very fond of the milky juice of a dandelion or sow-thistle. We used always to put a little tin pan of milk into the cage every night, and they would often drink it all, especially when they had young ones. It is said that Rabbits will be hindered from devouring their young by providing them with water, and that they would not eat them unless maddened by thirst or suffering from extreme hunger. Some Dormice have the same propensity to cannibalism; and if this theory about the Rabbits be correct, it may apply also to the mother Dormouse which devours her young. We thought she did so when alarmed for their safety, not being able to conceal them elsewhere; but it would be well to provide her with a constant supply of water or milk when nursing. The milk is useful too in furnishing the Dormouse with animal food; out of doors it eats insects. There are generally four or five young ones in a litter, born blind, but able to see in a few days, and they are soon capable of taking care of themselves. The cage must, of course, be kept perfectly clean, and the floor of the open part should be sanded like a bird-cage.

White, Grey and White, and Brown and White Mice are sometimes kept in cages like those of the Dormouse, and they must be treated in the same manner. The common Brown Mouse is said to be a more tractable and intelligent pet, and to be easily tamed by patient kindness. I never heard a Mouse *sing*, but several instances are recorded of Mice who have learned to imitate the chirp and even the song of a Canary kept in the room in which they were; so that it might be worth while to try to give such pets the

benefit of a musical education for the chance of their acquiring so curious an accomplishment. The little Harvest Mouse, the tiniest of British quadrupeds, has sometimes been kept in a cage, and will grow tame enough to take its favourite food, flies and other insects, from the hand. It is a most beautiful little creature, very active and agile, climbing about by means of its long tail and flexible toes, and leaping like a little Jerboa. It should have grains of wheat and maize, and canary seed, and plenty of water always in the cage; and wool or flannel and grass for its nest, which in its wild state is the most beautiful and elaborate construction of leaves and grass woven together into a round ball, and suspended from strong grass stems, wheat stalks, or thistle



WHITE MICE.

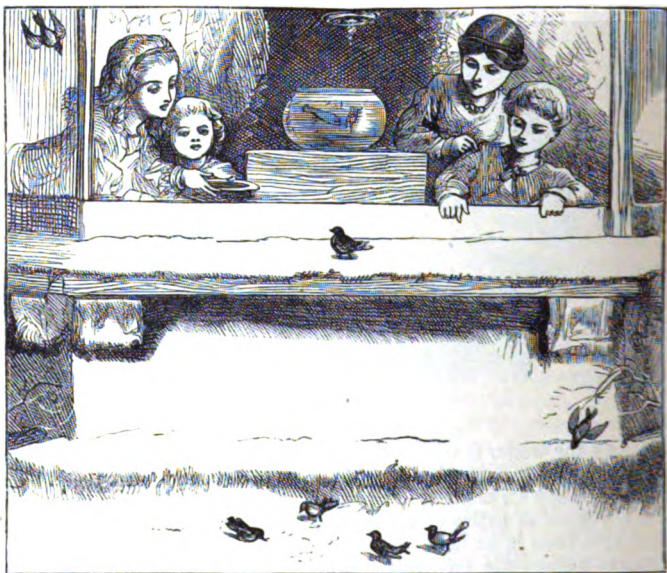
heads. In the winter it takes refuge in corn ricks, or burrows deeply in the earth, and makes a warm bed of grass. Even in confinement the Harvest Mouse will show its instinctive propensity to store up food for the winter, and if a number of grains of wheat or seeds are given to it, will carry them off and hide them in its nest.

None of these little creatures, however pretty and intelligent they may be, seem to me to be such desirable pets to be kept in the house as *Birds*, to which the remainder of this article will be devoted. We can make them so happy, and they can tell us when anything is amiss with them so plainly—so thoroughly enjoying our petting, and becoming so attached to us—that no trouble is thrown away upon our feathered pets.

On the whole, I think Canaries flourish best in imprisonment. All the English Finches do well in aviaries or cages; but one does not like to see them imprisoned while their brothers and sisters are flying about at large close by—one thinks they must envy them their liberty, and long to join them; while Canaries would suffer extremely exposed to the cold of winter, if, indeed, they survived it. As regards other birds—Robins, Wrens, Titmice, Sparrows, &c.—it is much pleasanter to have them visiting us from the garden than to keep them shut up all the year round; and Larks and Night-

ingales are so completely out of their natural element in cages that one cannot feel happy in keeping them. Any one who will take the trouble to feed the birds that congregate round the house in winter may soon have a family of pensioners.

The Robins will become our very familiar friends—hopping about at their ease on the breakfast-table, examining every article in the room with the utmost self-possession; will visit us regularly through the cold months, and, if they leave us in spring, will bring their young ones to make our acquaint-



ance when they leave their nests. Crumbs of bread, potatoes, and scraps of fat will make a feast for the poor little hungry birds, driven by frost and snow to our doors; and the saucy Tomtits and Sparrows will afford us much amusement in return for our hospitality.

We may get much insight into the special characteristics of the birds by watching them when they are at their ease, and a hard winter will sometimes make them so tame, and so accustom them to our care, that they will hover about us out of doors, and peck at the windows for admittance at their usual feeding hours.

Although I do not advocate keeping English birds in confinement as a rule, it will sometimes happen that nestlings will be thrown upon our compassion, which have either fallen out of their nest, lost their parents, or have been



FEEDING THE PIGEONS

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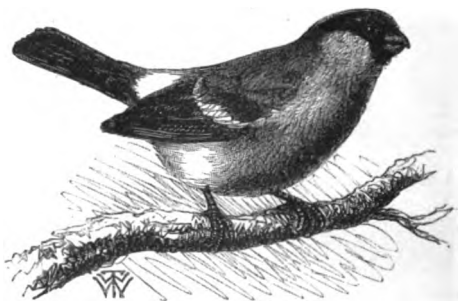
taken captive by village boys, and are likely to come to a miserable end if not taken care of. Under these circumstances it is as well to know how to bring them up by hand. I once had several nests to take care of, and all the young birds were reared and sent out into the world when able to take care of themselves; all but two Bullfinches, which were given to a neighbour, who fed them upon hemp seed—the consequence of which was that nearly all their feathers fell off, and they were the most miserable little objects that can be conceived, and their little red-hot bodies were quite uncomfortable to touch. A course of warm baths and plenty of cooling green food, however, restored them to health and beauty, and they were returned to their owner with a warning against hemp seed. It is said that a Bullfinch fed entirely upon this heating seed will become blind.



Nestlings should be fed upon bread soaked in water, squeezed nearly dry, and chopped up finely with rape seed which has been scalded by pouring boiling water upon it, and leaving it till quite cold. Of course this food must be made fresh every day; if it grew sour it would kill the birds at once. About four quills full of it is enough for a meal for one young bird; but they generally clamour for food till they have enough, and then settle down to sleep again. They must be fed as soon as possible in the morning after sunrise, and will require food at intervals of from one hour and three-quarters to two hours throughout the day, the last meal being given about sunset, when they must be covered up for the night. The best plan is to keep the nest in a shallow box, over which a board can be laid to darken it, otherwise the birds will be asking for food every quarter of an hour. As soon as they hear a step in the room they begin to chirp; and when the box is uncovered they will stretch out their necks, and as they grow older jump out of the nest,

and fly upon the hand or shoulder in their impatience for food. In time they will learn to feed themselves with the soft food, and by degrees to pick up and shell the seed put into their cage; for of course they must be put into a cage as soon as they are fledged sufficiently to enable them to fly. It is best to crush the hemp seed for them at first, but they soon learn to shell the canary and rape seed.

The Linnets and Greenfinches I brought up by hand were very tame, and although I left seed and water always within their reach, I accustomed them to be fed by me, and kept any food of which they were particularly fond—hemp seed, plantain, or chickweed, for instance, which all birds love—to be given them as dainties; so they always expected something nice from me, and would fly out of their cages and all round the room in their joy as soon as I opened the doors, returning to perch on my hand, shoulder, or head when they wanted their food. The Greenfinches were very bold birds, and



BULLFINCH.

as familiar as possible with me. They were great eaters, and very eager for their favourite food, so they always welcomed me very heartily; but I did not prize their affection so much as I did that of the Linnets, which were naturally more shy and retiring, and required more courting and petting. They are very nice pets, and become very much attached to their owner, and their song is very sweet; but if kept in confinement they never acquire the red pole and breast which ought to distinguish the male bird in full plumage. They are fond of flax or linseed, but they must not have much of it, or they will grow very fat. Canary and rape seed should be the principal food both of Linnets and Greenfinches. As soon as my four green nestlings were full grown I let them fly out of the window, but for a long time they used to come back to the cage for food, and sometimes would roost there during the night, however, at last they found companions of their own kind in the woods and fields who gradually weaned them from us.

The Bullfinch is a very nice pet: he becomes so attached to his owner,

and will not bestow his affection indiscriminately, so that he repays one for any attention given him. He is subject to fits of jealousy, however; and I have known birds who would take a violent dislike to any friends of their mistress upon whom they thought some of the affection due to themselves was bestowed. Some have died of grief when separated from those who petted and fed them, and who had won their faithful little hearts completely. They are happy in confinement, if not made ill by improper food, as they are not very active birds. They should have no sweets or injurious delicacies, but be fed upon rape and canary seed, with an occasional treat of hemp seed, water-cress, lettuce, and chickweed and groundsel. If they mope and ruffle their plumage, they should be fed only upon scalded rape seed for a few days. When moulting they require a little hard egg and bread crumbs, and a rusty nail or a clove in their drinking-water. They like a little bit of apple and a few berries occasionally. In gardens they are supposed to do a great deal of mischief by eating the young buds and fruit; but it is doubtful whether the good they do by eating the insects upon them is not more than the destruction they are accused of. Their natural song is not musical, but they may be taught to whistle or "pipe" airs very accurately. The Germans take great pains in the teaching of their young Bullfinches. They divide them into classes of five or six pupils, and they are kept much in the dark, and the tunes they are to learn are repeated over and over again to them while they are fed. By degrees light is admitted, and after a time the birds are taken out of the class, one by one, and given into the charge of a boy, whose duty it is to repeat the tunes on a bird-organ from morning to night, till the bird acquires them perfectly, when a large price will be paid for him. Some bird teachers keep their pupils fasting while they learn their lessons, and only feed them as a reward; but I believe the best and most humane plan is to repeat the airs to them while they are digesting their food; and if they are taught by good whistling instead of by a bird-organ, they generally pipe in a pleasanter and more flute-like manner. Bullfinches that can pipe three or four distinct airs correctly are highly prized, and £4 or £5, or even more, will be paid for them. It is, however, as well to suggest that there may be disappointment in store for their purchasers, for the birds are often apt to forget their accomplishments while they are moulting, and they ought to have the airs frequently repeated to them during this time of silence, and when they are beginning to use their voices again.

The Bullfinch can be taught to perform many amusing tricks, such as drawing up water in a bucket from a little well underneath his cage, and the more difficult feat of pumping it up to fill his bath; but although intelligent and docile enough to learn these, such accomplishments do not appear to suit him so well as the active, restless little Goldfinch, who is scarcely still a minute in the day, and seems to want something to do to fill up his time in confinement.

The Goldfinch is an universal favourite, both from its beauty and sprightliness: it is very restless in a cage, and therefore I do not think it appears as contented as some less active birds; but it will live many years in confinement, and in an aviary is as happy as possible. It ought not to have a



bell-shaped cage, as it is apt to grow giddy, twirling its beak along the wires. It is very easily tamed, and is capable of great attachment to its owner, and may generally be safely allowed a flight round the room while its cage is being cleaned. I had one which would fly across the room to me as soon as its cage door was opened, and perch on my shoulder for its favourite food of hemp seed. It is rather fond of eating, I think, and takes so much exercise that I suppose it requires plenty of food. It will not sing without a few hemp seeds in the day, but it must not be fed solely upon this heating seed. Canary, rape, and poppy seed should be the ordinary food of Goldfinches. Lettuce, groundsel, chickweed, and water-cress they should have frequently, and plantain in the winter; in the wild state they feed much on thistle seed, and they should often have a thistle head given to them, to pick

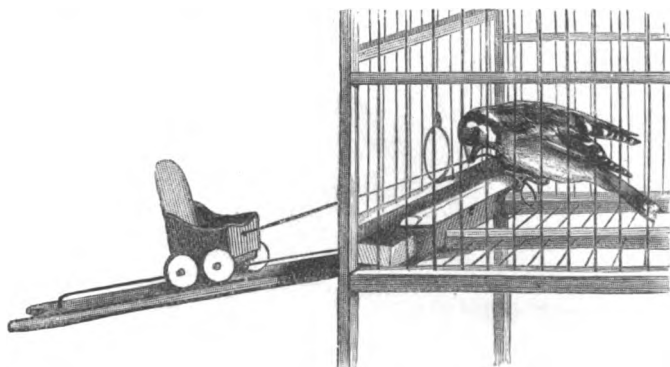


GOLDFINCH.

the seeds out of it for themselves. They ought not to have sugar or sweet cakes, but they exceedingly enjoy a treat of biscuit, and Reading cracknels are very wholesome for them, and thoroughly appreciated by Goldfinches, Bullfinches, and Canaries.

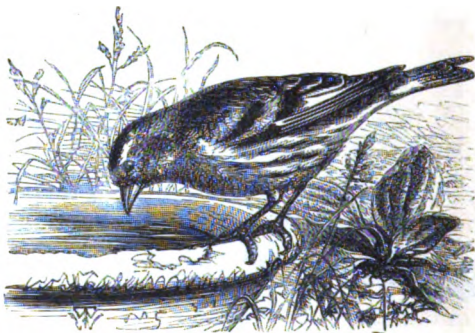
The Goldfinch is a very tractable bird, and there are many accomplishments which he will learn, and seems to exhibit with pleasure. He may be taught to fire off a small cannon, to feign death, and stand unmoved while fireworks are let off close to him, to mount a ladder, &c.; but I fear when these tricks are made use of by his master to exhibit in public, for pay, he is often treated with cruelty to make him a proficient in them. Many very harmless accomplishments he will learn, however, merely by patience and kindness on the part of his teacher—to open a box for his seed, to ring a bell when he wants food, to drag a little waggon up an inclined plane into his cage, and to draw up water from a little well underneath it. All these are easily taught, and the bird really seems to find pleasure in such little tasks. One of my birds who lived in a cage so constructed as to have the seed always in a box of which he had to lift up the lid, and the water in a

well to be drawn up in a bucket, was quite unhappy when his home was undergoing repair, and he had to live for a time in an ordinary cage, and sang his merriest song when he had to go to work with his little chain and pail again. I taught him to lift the lid of the box by having it open for one day, and then gradually lowering it by means of a piece of silk put round it, fastened at the back of the cage, till it was quite shut. He very soon found out that he must lift it up with his beak in order to reach the seed; and at last he became so crafty about it, that he would take out two or three seeds at once, and put a reserve by his side between the wires while he ate one. The cage was made with a wooden back, and the box was let into this above the door, and the lid fastened to the inside with two little hinges (care should be taken that the lid is not too heavy for the bird to



lift easily, and that it should fall at once when not held up); a little bow window was constructed in the front of the cage, in the floor of which was a little hole with a wire across it, to which was attached a light silver chain fastened to a silver bucket about the size of a thimble. A small coloured glass tumbler was fixed below the bow window, by means of four strong wires and a ring. This was filled with water and the bucket dropped into the well, and the bird hauled up the chain with his beak, holding each fresh haul with his feet till the bucket came to the hole, and he could drink out of it. I taught him this accomplishment by filling the bucket with water, and putting it on the floor of the bow window to accustom him to look for water there; then I let it down by means of the chain pushed through two of the side wires by degrees, lowering it a little more every day. At first the bird pulled up the short bit of chain with his beak, and let it go before he could drink out of the bucket, but he gradually found out that he must hold the chain when he had drawn it up, and when he had once succeeded in doing this his education was finished; he never forgot the art, and often showed his delight in his task by singing when he had drawn up the bucket

while his chain was under his feet, before he quenched his thirst. Of course it is necessary to see that the machinery of the bucket, chain, and well is always in order; any hitch preventing the bucket from falling into the well and getting re-filled with water would cause the poor little bird to die of thirst. The Bullfinch and Siskin will readily learn this accomplishment, and I had a mule bird (whose parents were a Goldfinch and Canary) who learned it very quickly; but I never succeeded in teaching a Canary to put his foot on the chain, though he would pull it up with his beak readily enough—of course, always to be disappointed by the falling down of the bucket. A Goldfinch will learn to pull a little waggon up an inclined plane in the same way, and to take his seed out of it, the chain attached to the waggon having to be hauled in and held in the same manner. The way to



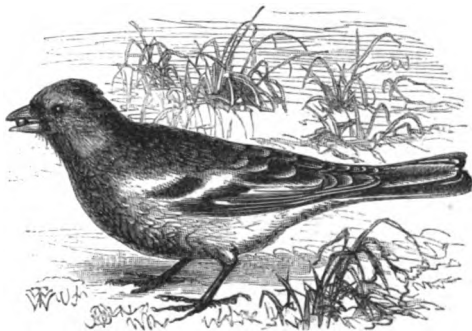
SISKIN.

teach him to ring for his food, is to suspend a little bell in a corner of his cage, and, when he has been an hour or two without food, to ring it by means of a string attached to it, and immediately to place some of his favourite seed in the glass. In a few days he will discover that whenever the bell rings he gets a meal, and will seize the string, and peal away merrily whenever he is hungry.

The Goldfinch is rather subject to epileptic fits, and whenever he is seized with one, he should be plunged head downwards into cold water, and one or two dips will restore him at once. He is a large eater, and in all probability has indulged his appetite too much, so that he must be kept upon a low diet of lettuce seed and thistles, and have no hemp seed for a few days after he has had one of these fits.

He is fond of bathing, and should have a bath every day. The Goldfinch will sometimes mate with the Canary, and the mules are very pretty. He must, however, be taken away from his wife as soon as she begins to lay, as he has a mischievous propensity for breaking the eggs. After the young birds are hatched he may be put back into the cage, and will help in feeding them.

I have never had a Siskin, but it is a very favourite bird among bird-fanciers, especially in Germany, where it is ranked as one of the best of cage birds. It is smaller than the Canary, and its song is not so loud—a low sweet warble, which suits some people better than a more beautiful song. It is a very sociable bird and very easily tamed, and is very amusing to watch in a cage, on account of its whimsical postures and climbing propensities. It seems to delight in doing things which it would be next to impossible for ordinary birds to accomplish: it will drink in a perpendicular position, hanging by its legs, with its head downwards, and sleep clinging to the wires instead of roosting on a perch, and will run along the top of its cage like a fly upon the ceiling of a room. It seems to use its feet very much like parrots, and to throw somersaults like a mountebank for amusement. Doubtless it would soon



CHAFFINCH.

learn all the feats which have been spoken of as accomplished by the Goldfinch, to perfection. The Siskin is said to be very fond of eating, and to eat much more than most birds of its own size. It should be fed on canary, rape, and poppy seed, with occasional treats of hemp seed and almonds, of which it is very fond, and must have plenty of water both for drinking and bathing. Very handsome mules are obtained by mating the Siskin with the Canary.

The Chaffinch is not valued so much in England as in Germany, where bird-fanciers prize it exceedingly for its song. Indeed, the enthusiasm about it is so great that in some of the villages the inhabitants appear to have quite a passion for the Chaffinch's song. At Buhl, in Thuringia, the ootters will go ninety miles to catch one who is supposed to sing well, and a common workman will give as much as 16s. for one, and live on bread and water to get the money; indeed, there is a proverb amongst them, "A chaffinch is worth a cow." Bechstein gives no less than eight varieties of songs most admired in his country, and says that no amateur can hear the *double trill of the Hartz* without being in an ecstasy. The Chaffinch's song seems to vary in different countries and in different provinces. The bird-

catchers who frequent Epping Forest, say that the birds there sing a different song from those on the other side of the river; and they have singing matches amongst their birds, the prize being given to the owner of the bird who delivers the greatest number of perfect notes within a certain time. A perfect note in their estimation is represented by *toll-loll-loll-chick-wee-do*, and if the bird slurs over his notes, and stops at *chick* or *wee*, the note is not to be counted.

The Chaffinch is easily tamed, and lives happily with other English Finches and Canaries; feeding on the same food recommended for the Goldfinch. Too much hemp would produce blindness or some other disease. A bell-shaped cage is objectionable for the Chaffinch, who has the same disposition as the Goldfinch to giddiness. In its wild state it builds the most beautiful nest of lichen, lined with feathers; in confinement, I am afraid, its architectural talents would fall into abeyance.

If my readers desire to have a nursery of young birds, they will find Canaries the best in every respect to rear. There is no doubt about *their* happiness in a cage, if proper attention be paid to them; and I would fain believe that no one who reads these pages would willingly cause them suffering from want of care, or would attempt to keep pets upon whom they are not ready to bestow all the time and trouble necessary to keep them in health and comfort. Young ladies are not worthy of their birds if they neglect them, and leave them to the care of servants, to whom they are either troublesome or indifferent. And their attention will be received with such expressive gratitude and delight—their feathered pets will welcome them so gladly, and show so plainly how much their happiness depends upon their care—that they will be sufficiently rewarded for its bestowal. They should become intimately acquainted with their birds' dispositions, too, and learn their language thoroughly, and they will find a fund of amusement in their society. This is more easily accomplished when one or two pet birds are kept in a cage alone, than when there are a number of Canaries together in a very large cage or aviary; but I always like best to see them under such circumstances—they seem so thoroughly happy when they have room for flying and frolicking about; some birds, too, will sing best when they are excited by emulation with others, but occasionally a good songster is sulky when in company, and prefers being alone. One of my birds who had been accustomed to a small single cage, never seemed at ease when in a large one, and resented being jostled by others. He was an old bird, too, and did not like his saucy young companions, and showed his displeasure by total silence whenever he was placed with them; so I had to restore him to solitary grandeur.

All through the autumn and winter months, about twenty or thirty birds will live very happily together, in a cage from 3 feet to 4 feet long, and 2 feet high and wide. This should be made of tin wire, as brass is apt to corrode, and communicate its poisoned green rust to the birds, when they rub their beaks against it; the iron rust is very good for them. The wood may be either mahogany or varnished deal. The arrangements for seed and water should be carefully attended to. If the former is put into the cage,

the bird-hoppers are best to use, because the seed is kept clean, and only falls down as the birds peck and scatter away the husks beneath. A good plan is to have the seed and water in long covered boxes outside the cage, with china or glass trays to take in and out of them. These can be kept perfectly sweet and clean, and the birds cannot make the seed or water dirty. Objections are made to the old-fashioned bird glasses, because they are sometimes carelessly put into the wires which hold them, so that they slip aside, and the poor little birds cannot get at the water; but no provision for their comfort can succeed if carelessness be allowed at all. I do not advocate their use, however, for if they are very full, the seed or water often



CANARY.

gets spilt into the cage, and if not, the birds have to stretch their little necks painfully to reach their food. Sometimes, too, a young bird will contrive in some mysterious fashion to get into the glass, and having got in, cannot extricate itself. One of mine was nearly suffocated by getting into a seed glass, and it was a long time before I could pull it out again. I had to pour all the seed out first, and at last I contrived to rescue it; but another bird, of which I heard at the time, got into the water glass, and was drowned before its danger was discovered. Nothing looks prettier at first than a fountain in the middle of the cage; but it becomes so dirty in a few hours that it is not well to use it. A bath, wired round like the cage, should be made to hang on the doorway, and the birds will go in and out and splash about in this, with the greatest delight. It must be taken away when they have all had a good washing, in cold weather especially, as some

of them will go into the bath again and again, and get completely chilled. In winter the water must have the chill taken off, and whenever the sun shines they may have a bath safely. They must always have sand spread on the board at the bottom of the cage; and the coarse gravelly sand is best for them. It is a good plan to have a second board and two sets of perches for a large cage; this gives opportunity for washing and drying them thoroughly, and when the board gets wetted by the splashing of the birds, it can be dried before it is returned to the cage. Of course the perches must be made to take in and out of the cage; they should be round and smooth like a bamboo. A swing suspended from the centre is a source of pleasure to the birds, and if the cage has a domed top, looks very pretty underneath it. They much enjoy having a pot of mignonette or of chickweed put in; and all perch eagerly about it, and soon devour every leaf and flower. No plant that would be injurious to them must be put either in or close to the cage, for they are sure to eat the leaves, and the beauty of the plant is destroyed in a few hours. My cage stands on a flower-stand and has flowers all round it, but the plants are always kept out of the bird's reach. A fir branch put into the cage occasionally gives them a good deal of amusement, and seems to do them no harm; but it is very soon reduced to a bare pole. Plantain is very good winter food for them, and they enjoy picking it from the stalk. Their food should have plenty of variety, to keep them in health and good humour. They must not have sugar or sweet cakes, but plain biscuits—cracknels, for instance, are good for them. Their staple food should be canary and bird turnip (the small brown summer rape) seed, a small quantity of hemp seed each day, and occasionally, in cold weather, a pinch of maw, or poppy seed, always to be given while the birds are moulting. When they are building they must have a mixture of hard-boiled egg and finely-crumbed stale bread, with a pinch of the same seed mixed with it every morning. It must always be made and given freshly, or it will turn sour and kill the birds. This food may be dispensed with while the hen is sitting; but as soon as she is about to hatch, it must be put in the cage for the young to be fed upon.

Canaries ought to have green food three or four times a week, chickweed, groundsel, or lettuce. It is better for them to have a little constantly than a great quantity now and then, when they are apt to eat over-eagerly of it. They should have some whole oatmeal or grits every day; sometimes a little piece of bread soaked in milk, *not* boiled, unless it is given as medicine; a little lump of bay salt to peck at, or a bit of apple, or pear, or potato, or rice pudding. All these tit-bits are, of course, to be considered as delicacies, to be given by the birds' mistress, and they will help her very much to win their affection. They require warmth and nourishing food during moulting: if they seem weak, a rusty nail in the water gives them a little tonic, and a small piece of Spanish liquorice is good for hoarseness. By way of physic, I think I have rarely found any of the many nostrums recommended as specifics of much use, excepting boiled milk. If they have been eating too freely of green food, a lump of chalk may be useful. Some bird-fanciers give ants' eggs and a spider occasionally, and it is likely that this animal food

would be good for them now and then. Most birds are, to a certain extent, insectivorous in their wild state. Variety in their food is necessary for all birds; and if they have this, and the seed is good and sound, and they are not exposed to draughts or sudden changes of temperature, they will rarely have anything amiss with them which a warm bath will not cure. Whenever my birds look moping, or when the hen is "egg-bound," and cannot lay her eggs, I give them a bath at 96°, holding the bird in my hand while immersing all but the head in the water for three or four minutes, then taking it out and drying the feet, I put it in the sunshine, or at a little distance from a fire to get dry. Sometimes, if a bird is not fond of bathing, the feet will get clogged, especially during nesting, when the claws get a bit of hair or cotton twisted round them occasionally, and the feet should be cleansed in warm water, and gently freed from their troublesome encumbrance.

An old bird's claws will sometimes grow too long, so that it cannot perch comfortably and they must be very carefully cut, taking care not to draw blood, or to injure the bird in any way. Whenever possible, it is best to avoid catching the birds, especially if they are wild and fly about in alarm; but if taught to consider their mistress as their friend, they will generally submit, without much fluttering, to be taken hold of; and illness generally tames them sufficiently to make them quiet when they require to be taken out of the cage to be put into a bath.

Early in spring, when the cock birds begin to fight, the hens should be taken away, and kept apart in another cage till the pairs are put together in March. Some people allow their birds to choose their own mates; but a great deal of quarrelling takes place before this, and two or three gentlemen will sometimes fix their affections on the same lady, and they will get injured in the combats that ensue; besides which, if it be an object to secure good coloured birds, it is necessary to put those together whose colours contrast well: a mealy cock with a jonque hen, or a green bird with a yellow partner. Handsomer birds are obtained by these selections than when two birds of the same colour are paired; and two crested birds should never be put together, the young will probably be bald-headed. It is best to give an old wife to a young cock, and *vice versa*; and the birds of a family should never be mated together: the progeny will infallibly be weak and unhealthy if this is permitted. Two of my birds were accidentally paired, a brother and sister, and the result was that one of their children was blind, and another deformed. For these reasons it is best not to leave the birds to choose for themselves, but to separate them before any attachment springs up among them. Cages sold as "breeding cages" have a wooden compartment at the top of one end for nest boxes, and a wired-off partition underneath, into which the young birds may be put when it is desirable to separate them from their parents. There are some advantages in these cages, and the birds which are shy and like retirement prefer them to the open cages; the only objection to them is that they are inconveniently small when a large family is hatched, and that the nest boxes are necessarily so high that the young birds sometimes fall, when they come out of the nest before they are fully fledged, and are injured thus. On this account I put nest-baskets



into my cages, at a little distance from the floor, so that the young birds hop in and out easily; and if the old birds should entangle their feet in the nest, (which they sometimes do if the claws are long and they fly out in a hurry), and the young birds are thrown out of it, they are not likely to be so much hurt as if they fell from the greater height. My breeding cages have compartments for the separate pairs, three in each, the centre space being kept for the young birds of each family, that they may be fed through the wires by the old birds, when they have left the nest, but cannot feed themselves. This space is necessary, too, to prevent quarrels, as the birds on each side of the wire partition will sometimes try to fight, and make furious assaults on their neighbours through the bars, or jealousies will arise to break their domestic peace, if, while the hen is sitting, her husband chooses to feed his neighbour's wife through the wires. The pairs should be kept as retired and out of sight of each other as possible. The materials for the nest should be hung up in the cage in a little net; fine moss and cow-hair are best; if cotton wadding is given it is apt to get matted and clogged round the bird's claws. The hen will generally make the nest herself; but some birds are idle about it, and do not take the trouble to do more than to put a little moss or wool into the basket, and then it is as well to make a nest for her; but it is not at all certain that she will allow it to remain in the basket. Some birds seem to prefer sitting on their eggs without a nest, or are very capricious about its formation, and will undo one day the work of the previous day. It is as well to leave them to their own devices till the young are hatched, and then they may have a little moss or cow-hair put in under them to make their bed softer. The hen generally lays four or five eggs, and sits thirteen or fourteen days, unless she or her mate have a bad habit of eating the eggs. They should be left in the nest, and not touched or interfered with at all, until a fortnight has elapsed after the laying of the last egg; then, if there are no signs of hatching, the eggs may be put into warm water: if they float, the probability is that they are addled, and no young bird in the egg; if they sink, they may be replaced for a day or two, but if not hatched then, they should be taken away, or the hen will go on sitting uselessly (on dead birds probably). Sometimes a violent jar, caused by the shutting of a door near the cage, or the fall of the cage itself, will kill the birds in the egg, or the mother bird will cause their death by allowing the eggs to get cold, if sitting irregularly. The egg food must be provided in readiness for the hatching; and it is necessary to watch the birds' proceedings at first, lest they should not feed the young ones; but very few Canaries are unnatural enough to leave them unfed, although they do not like to be overlooked, and, if they are shy birds, will refuse to feed their little ones when they are in sight, so that one has to watch them without appearing to do so. If they feed them once they will continue to do so; if not it will be needful to bring them up by hand, giving them the soft egg food with a quill, as with the nestlings before mentioned. A fresh nest must be given if the first nest becomes dirty, and the young birds carefully transferred to it with no more touching than is necessary. Some parent birds will resent any interference with their young, and will desert if they are meddled with;

others will appear pleased at any notice bestowed on them, and will call our attention to their children with great exultation, chirping, and flying up to the nest, looking in, and then looking up in our faces as if to say, "Pray admire my lovely infants."

If our birds are as familiar with us as they ought to be, they will exhibit their confidence in our sympathy and make their wants known to us in a very pleasant and expressive manner: if they want fresh food or water, they will go down to the glasses and look into them, and then look up at us and chirp; or if anything is amiss with their nestlings, they will attract our attention to the nest by signals that cannot be mistaken. One bird who wanted materials for her nest went about the cage picking up stalks, and another pulled the hair of any human head that came within her reach, to show what she wanted.

The young birds will generally be out of the nest in about a fortnight during the day, returning to it at night for warmth. The mother bird will often begin to lay again about this time, and must have a fresh nest given her; and the young ones should be put into the nursery partition, so as to be fed through the wires (or in a small cage tied on to the larger one). They are apt to tease their mother, or to break the eggs, by jumping in and out of the nest while she is sitting. I have sometimes seen three or four little heads peeping out under her wings at once, and occasionally they will sit upon her, which in hot weather is almost too much to endure. The cock bird will feed them while she is sitting, and show them how to feed themselves. They must have a supply of egg food, crushed seed, and water in their compartment, and by degrees they will become independent of their parents. The first moulting tries the young birds' strength much, and till it is over they must have the same food (egg food and crushed hemp seed) in addition to their usual provisions. The hen should not be allowed to have more than two broods in the year, for her health's sake: if she goes on laying or sitting, the nest should be taken away from her; and if that hint is not sufficient, she must be separated from the cock till she begins to moult. The young birds should be within hearing of a good songster till after their moulting is over, when they will begin to warble feebly. If a Nightingale or Woodlark were to be had as music master, they would learn his notes; but I do not advise any one to keep these birds in confinement; they are not fitted for it by temperament or constitution, and their song is much more glad and sweet in their native woods. I had one Canary who had learned several Nightingale notes, and used to repeat the "*jug, jug*," continually: he would not sing in company with others, but taught the young birds very well from a little distance. They will often learn best when their singing master is out of sight.

Cross breeding has changed the Canary of the present day greatly from the original wild green bird of Teneriffe and the Canary Isles, and the varieties of shape and plumage are endless. There are Canary societies and bird-shows now, and prizes are given for birds which excel in beauty or song. They are arranged in different divisions, and connoisseurs talk knowingly of "Jonques," "Spangles," "Mealy birds," "Flaxen," "Grey,"

"Cinnamon," and "Agate-coloured" Canaries; all which have their distinguishing merits. Then there is the German Canary, a small, compact, smooth bird, with a sweet but not very powerful voice; and the Belgian, its opposite in every respect, very long and slender, with exceedingly high shoulders and long legs, standing so uprightly on its perch as to give one the idea that it would fall backwards. The Norwich, or London Fancy Prize Canary is a large square bird, with a massive head, deep orange in plumage all over the body, excepting the wings and tail, which should be black. This at least used to be the prize bird, but every season has its fashion in birds as well as in dress. To my mind it is the most beautiful of all the Canaries when perfect, but it is very difficult to get one without white or green feathers, or irregularly marked; and a perfect bird will become imperfect after its first two moults. This is the case also with the Lizard Canary, which should be of a greenish bronze throughout, excepting



JAVA SPARROW.

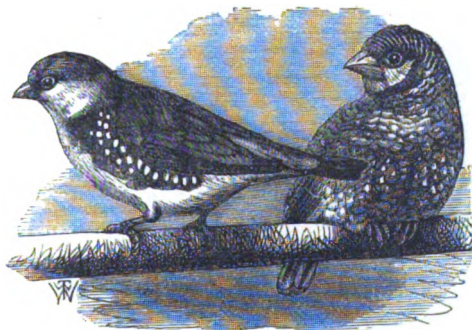
the crown of the head, which is yellow in the Gold-spangled, and white in the Silver-spangled Lizard. The markings or spangles on the back are very uniform and regular, and there ought to be no yellow or white feathers in the wings or tail; but these generally come when the bird is two years old.

Many of the foreign Finches do well in cages or aviaries where a moderate degree of warmth is always preserved: they are very beautiful, and many sing as well as their English relations; but they are rare and expensive. They are fed on the same kind of food—canary, hemp, poppy, rape, millet seed, &c., and generally require the same treatment as the Canary. Many other seed-eating birds are more easily procured, and do equally well in confinement. It is impossible to enumerate half of these, and every year adds to the list of imported foreign birds; I will only mention a few of those which I know personally as domestic pets.

The Java Sparrows are very pretty and affectionate, and very happy in confinement; and they are hardy, and can be kept even in an aviary where

Canaries would live. They are about the size of a Bullfinch, and like it in shape; grey in plumage, and so neat and smooth that the feathers seem to be arranged so as never to stand apart from one another, and all appear covered with bloom like that of plums; the head and throat are black, the cheeks white; the beak thick like that of a Bullfinch, but of a bright rose colour. The song is very poor and monotonous. They eat canary and millet seed, but might well be fed on rice, one should think, as they are most destructive in Java and China in the rice-fields, and are called Paddybirds (*Le Padda, ou Oiseau de riz*—Buffon) on that account.

The Cut-throat and Diamond Sparrows are very pretty birds, about the size of a Goldfinch, and their feathers are beautifully marked and spangled; but they are not interesting birds, and their harsh twittering is not agreeable. Their food is the same as that of the Java Sparrows, with the addition of chickweed and cracknels, of which they are fond.



DIAMOND AND CUT-THROAT SPARROWS.

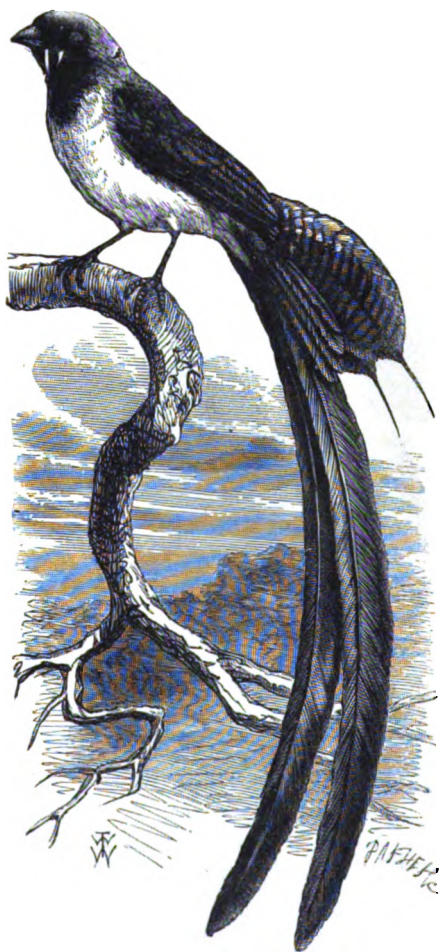
The Indigo Bird, Dominican, and Whidah Bird, are all Buntings, easily to be procured, and very beautiful. The former comes from Carolina and the neighbourhood of New York: its plumage is bright blue throughout, excepting the larger quill feathers and tail, which are brown. It may be kept in a bell-shaped cage, and fed on millet, canary, poppy, and bruised hemp seed. The song resembles that of the Linnet.

The Dominican and Whidah Bird are both Africans: the latter is chiefly remarkable for its long and curious tail, for the accommodation of which it requires a very large cage. The body is about the size of that of the Linnet. The head of the male bird is black, and the throat, wings, back, and tail are of the same colour; the back of the neck is orange, and the breast and upper part of the stomach white. The four outer feathers of the tail are about 4 inches long, and very broad; the next two are 13 inches long, broad in the middle, and running almost to a point at the ends; the two centre feathers are glossy, and a little arched, like those of a Cock; thread-like fila-

ments spring from the longer feathers and float about with every movement of the bird, which is very lively, and seems to take great delight in bathing and trimming its feathers: it moults twice in the year, and is without its tail from November to May. The female is entirely brown, almost black,

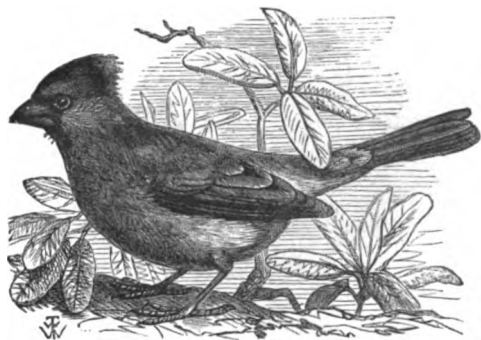
but does not acquire its full plumage until it is two or three years old. The Whidah Bird has a low, soft, rather melancholy song. It should be fed on canary and millet seed and barley meal, with lettuce, endive, and other green food from time to time, and will live in confinement from eight to twelve years. The same treatment will answer for the Dominican, but a large bell-shaped cage is more suitable for this bird, whose tail is not so long.

The Cardinal Grosbeak, or Virginian Nightingale, is a very beautiful red bird, with glossy black feathers about the head and neck. It is about 8 inches long, of which the tail measures 3. The song is varied and constant, and continues all through the year, except while it is moulting. The hen, which is of a reddish brown colour, is said to sing nearly as well as the cock; and perhaps that is the reason why these birds are better apart — the cock is jealous of his mate's rivalry of voice. Bird dealers have so often pronounced an unfavourable opinion of the Cardinal Grosbeak as regards his capabilities as a domestic pet, that I was surprised to hear of one which was so exceedingly tame



WHIDAH BIRD.

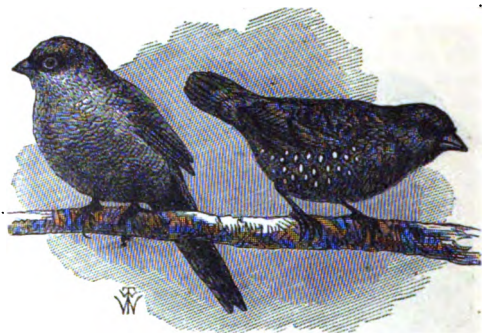
that he would carry his favourite tit-bits to his mistress, and try to make her eat crushed hemp and caterpillars! The bird is naturally, I believe, very nervous and sensitive, so that it would fret and chafe in a shop surrounded by other birds, and its wild fluttering would give the idea that it could never be tamed; but patient kindness and gentleness will make it a most attractive and pleasant pet. It should be fed chiefly on canary seed, but should have a few hemp seeds every day, and four or five meal-worms, or spiders, grubs, or caterpillars—some animal food, in short, to keep it well and vigorous. Spanish nuts, almonds, walnuts, and Indian corn may be given as a treat; and a lump of bay salt and a little piece of chalk should be put in the cage, and the bird should always be allowed a bath, and should be kept out of draughts. I give the directions which have been given to me by a lady whose Virginian Nightingale has flourished under her judicious care many years. I have never had one myself.



VIRGINIAN NIGHTINGALE.

The beautiful little Avadavats and Wax Bills I have kept, and I can thoroughly recommend them as pets for the drawing-room or conservatory. In the latter atmosphere they flourish best, for they are rather delicate birds, and do not like changes of temperature. The Avadavats are very small red and brown birds, and with their bright red beaks, spreading fan-like tails, and spotted plumage, are exceedingly pretty. They sit in a line on a perch as close as possible together, and are very affectionate. Their song is sweet and soft, and one will stand up and warble for a few minutes, and then sit down, and another will spring up and sing and subside into quietude, and so on. It is the prettiest thing imaginable to see a number of these little creatures in a cage of delicate workmanship, darting about, pluming themselves, washing, and singing, and appearing so thoroughly happy. They live very sociably with Silver Beaks, Cordon Bleus, and Australian, African, St. Helena, Orange, and Zebra Wax Bills, which are about their own size, and require the same

food and warmth. They feed chiefly on millet seed, but will eat canary seed as well, and must be abundantly supplied with water. It is necessary, however, to take precautions against their being chilled by being too constantly in the bath, especially in winter. They are so fond of washing that they will get into their water-glass, if possible, all day long, and I lost several of my birds from excessive bathing: I could not keep them out of the water, and when the sun was not shining, of course they could not get dry or warm for some time after they had been ducking themselves so thoroughly. I kept them in a cage made on purpose for them, with fine silver wires and glass sides round the lower half of the cage; but I do not think this answered for them. The glass prevented the floor from getting dry quickly after it had been wetted by the splashing of the water, and it never looked clean for the same reason — it was so constantly splashed. The wires must be small



AVADAVAT AND WAX BILL.

and closely put together, as the birds would get out between the wires of an ordinary cage; but I think tin wire is preferable to silver, and more easily kept clean. The birds must have a thick covering at night, and never be exposed to chilling draughts. A conservatory or greenhouse, kept at a moderate degree of heat always, is certainly the most desirable abode for these little foreigners.

An article on domestic pets seems scarcely complete without some notice of Parrots and Parrakeets; but there are so many varieties of this tribe of birds, and they come from so many parts of the world, that they require a book to themselves. I can only make a few suggestions for their treatment generally. Those which are natives of tropical climates require warmth and abundance of farinaceous food and fruit. Bread and milk should be the staple prison diet of Parrots (the bread should be soaked first in boiling water, squeezed as dry as possible, and then allowed to absorb as much fresh boiled milk as it will hold), adding Indian corn, biscuits, nuts, almonds (not bitter



almonds), fruit (hard and soft), peach and plum kernels, cherries, grapes, pears, &c., grain, and seed for the larger birds; and the smaller kinds should have hemp, canary, and millet seeds, with fruit. All should have water for drinking and bathing within reach; and if the birds will not go into water, it is well to sprinkle a little warm water on them occasionally, and put them into the sunshine that they may plume themselves and clean their feathers. Great cleanliness is necessary to keep Parrots in health, and their feet must

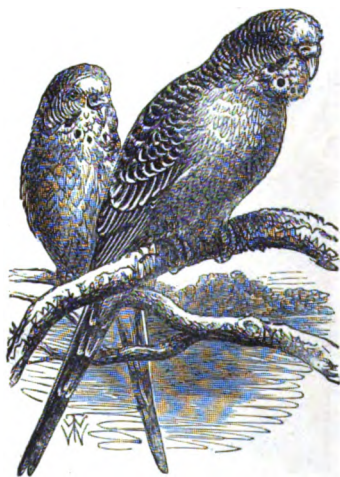


GREY PARROT AND COCKATOO

be frequently washed if they get dirty and they will not bathe themselves. They are subject to diseased feet, and their perches should be covered with flannel, and the bottom of the cage should have a grating with a drawer underneath it always covered with sand. Lettuce or water-cress may be given to these birds occasionally; and it is said that a chili-pod given from time to time is useful—when they are moulting they may have one or two cut up small once a week. If they have an attack of asthma they should have a few grains of cayenne pepper mixed with their bread and milk. Meat, sugar, and sweatmeats are all unwholesome for Parrots.



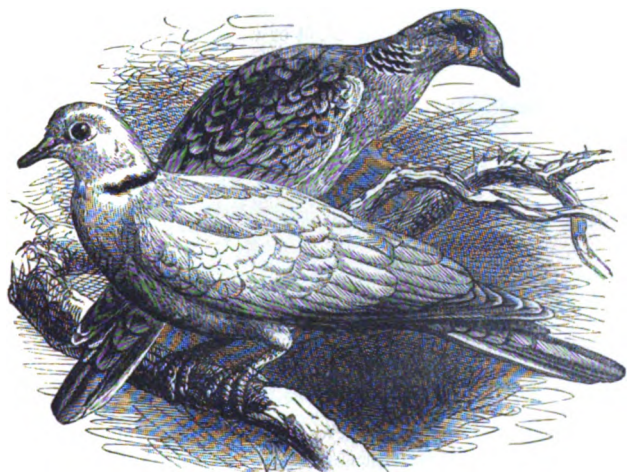
Within the last few years a great number of the Australian Grass Parakeets have been brought to England. They were very expensive at first, but I should suppose they must be cheap now, for I hear of *some thousands* being brought over at once for sale. They are very delightful pets, and their plumage is very beautiful: one of the most charming is the Warbling Grass Parakeet or Budgerigar, which is said to breed in captivity. Those which I kept were, I think, confined in too small a cage, and to see them to advantage they should be in a large, or rather a long cage, along which they can run, or in a room or aviary. In their native land they feed in large flocks upon the grass seeds in the plains, and rest during the heat of the day upon the branches of the gum trees, in the hollows of which they



AUSTRALIAN PARRAKEETS.

lay their eggs. Their plumage is very beautiful; green is the prevailing colour, but it is very much spotted with black, and the breast and under tail feathers are yellow, and some of the feathers of the wings blue-black. They have bright blue spots on the cheeks, and the only distinctive mark of the sexes is, that the cock bird has bluish nostrils and the hen brown ones. They are very loving birds, and are continually caressing each other, keeping up a constant chirping and chattering all the time. My pair would sometimes flap their wings and utter a harsh disagreeable cry, but I think this was owing to their dislike to the smallness of their cage. I put a cocoa nut into it in the hope that they might be induced to breed, but they never took any notice of it, except to bite the outside, and I imagine that they ought to have a cage 4 feet long to live in, and to be left in a much quieter

room than mine was ; they are shy birds, and I could never succeed in making mine familiar with me — they were never tempted by any dainty I could offer them, and, indeed, never approached any food to which they were not accustomed, so that I could not change their diet : the only treat they had was a bundle of oats, out of which they could pull the grain, and that they appeared to like. I used sometimes to let them out of their cage, and their great delight was to run along the green bars of the Venetian blinds ; but they were so crafty that I found it impossible to catch them, and sometimes had to wait till late in the day before hunger induced them to return to their cage, and then they would often pop in and out again before any one could shut the door of the cage. They lived very contentedly in the large winter

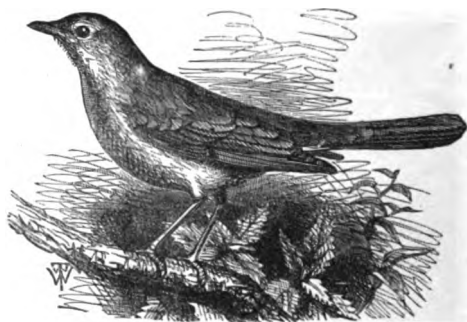


DOVES.

cage with the Canaries, but took very little notice of them, being too much occupied with one another to care for others. The hen is said to lay her two eggs about Christmas, and to be a very attentive mother, but I could not get mine even to enter the cocoa nut I was told to provide for a nest. These birds seemed to like to get hold of a large piece of gravel to carry about the cage, so I put a piece of charcoal in for them, but I do not think they touched it. I always gave them water, but they did not drink much, and I never saw them bathe, although Australian travellers speak of flocks of them coming regularly every evening to the springs of water. Like the Love Birds, which they much resemble, these Parrakeets are unhappy alone, and must always have a companion.

This is the case also with Doves, which look very disconsolate without a

mate, to whom they are constantly cooing. They are pretty, gentle, quiet birds, and easily tamed. The Stock Dove, Ring Dove, Turtle Dove, and Collared Turtle, are all kept in confinement, but they should have a great deal of air. If kept in a wicker cage, it should be carried indoors at night (for, being natives of hot countries, they do not bear cold well), and taken out of doors early in the morning. The German peasants keep Doves constantly in their cottages, from a fancy that they cure colds and rheumatism by taking the complaints themselves, and I believe it is true that Doves are subject to the diseases which people shut up in the same room with them have, such as small-pox, swollen legs, and tumours in the feet; but this is probably due to the close unwholesome condition and bad air of the room, which affects birds and human beings alike. They are best kept in a conservatory or aviary, unless they are tame enough to fly in and out of the house, and return to their cages at night or when they want food, in which

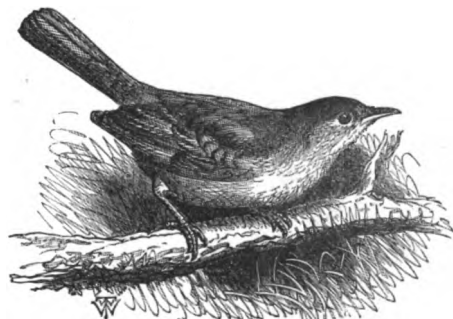


NIGHTINGALE.

case they may be allowed their liberty. They must have plenty of fine dry gravel and conveniences for bathing, and their food should be barley, wheat, pease, vetches, hemp, and canary seed. They like variety in it, and are fond of bread dry or soaked, the seeds of pines and firs, and linseed and myrtle berries. They ought to have bay salt mixed with old mortar or gravel: the salt is good for their throats, which often become diseased. Doves generally have two broods in the year, two young ones at a time, which they feed from their crops. I have been told that they are often unnatural enough to neglect this duty; but I do not think this is generally the case. The young are so dependent upon their parents, that they could hardly be reared by hand. They are not very interesting birds, but have great beauty of plumage, and no disagreeable characteristics to detract from their merits as domestic pets.

It may be remarked by my readers that I have not recommended the Nightingales, Larks, and many of our most renowned songsters to be kept in confinement. I have not done so, because they are not fitted by Nature to be

imprisoned in cages. Those especially which are migratory birds are restless and miserable when the season comes for their flight to other countries; they will beat wildly against the bars of their prison, forsake their food, and gasp for breath, and when quieter, will be very dull and moping for some days. This is one of the difficulties of keeping Nightingales, which suffer much from this impulse to migrate. They require a spacious cage, at least 20 inches long, 9 broad, and 12 high; the roof should be lined with green baize or some soft material, and the three perches with which it should be provided must be covered with this to protect the birds' feet, which are very tender. They are fond of bathing, but care must be taken that the cage does not become saturated with water. Some Nightingales dislike a strong light, and will not sing in sunshine, and they must be humoured and treated very gently. If possible, they should be allowed an unfurnished room to live in, and if the sun enters this freely, and they can fly about



BLACKCAP.

among fir branches or other evergreens, with plenty of sand, clean water, and the food they like, they will be much happier and healthier than in a cage, although, perhaps, they may not sing as well, especially if in the company with other birds, as in solitary confinement. They must have ants' eggs and meal-worms daily if possible; if not, their food should be roasted bullock's heart, and raw carrot grated, and a little lean beef or mutton, stale bread, and hard egg occasionally, ripe elder berries, and spiders and caterpillars. They need animal food daily, and when moulting require the most nourishing diet, and to be protected from cold and draughts. They are fond of boiled vegetables and pudding, bread soaked in milk and squeezed dry, and scalded hemp seed crushed, and various pastes are given to them and other soft-billed birds, which seem to agree well with Nightingales.

The Blackcap, which is sometimes called the Mock Nightingale, Redstart, Whitethroat, and other warblers, require much the same treatment. The Blackcap should never be without fruit of some kind, cherries, currants,

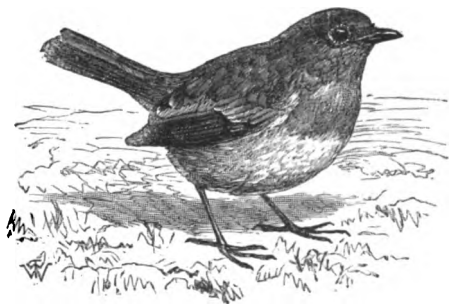
raspberries, elder berries, or ripe apples. For all these birds, Mr. Sweet recommends hemp seed soaked in boiling water and bruised, mixed with scalded bread (made without salt), and a little lean meat finely minced. This must of course be given fresh every morning, and the birds should have hard egg also. Other bird-fanciers recommend boiled carrot or beet-root mashed, and pastes made of white bread twice baked and pounded, with milk poured upon it, and mixed with barley meal or wheat meal, and the "German Paste" made as follows: heat two table-spoons full of melted lard, free from salt, in a saucepan till nearly boiling; stir into this, while near, not on, the fire, four table-spoons full of treacle, and three pints and a half of pea meal till the mixture becomes a stiff crumbly paste; a few more seeds may be mixed with this, or a little stale bread grated, or well boiled mealy potato can be added to it when given to the birds. It will keep a long time in



GOLD-CRESTED WREN.

a glass jar, and both seed-eating and soft-billed birds will thrive on it. If birds of various kinds are kept together in a room or aviary, it is necessary to give some general food which those that live upon seeds, insects, berries, and fruit, may equally enjoy, and these pastes are suitable for all. The seed-eating birds must have a mixture of seeds as well, and the insectivorous birds should be supplied with meal-worms, cockroaches, and crickets, easily procured from a baker's shop, and dried ants' eggs. These can be obtained in summer by uncovering a nest of the large wood ant, and placing the eggs on a cloth in the sun, with the corners turned up over small leafy branches. The ants, in order to protect them from the sun, will carry their eggs under shelter, and thus they are procured free from dirt and from the ants also. They may be dried in a frying-pan on sand over a slow fire, and kept in the sand in a jar all through the winter. All birds like them. The most beautiful of our small birds, the Gold-crested Wrens, delight in them, and must have them as well as bread and milk or soaked biscuit beaten up with milk; but these are such delicate birds, and suffer so much from cold, that it is very dif-

ficult to keep them alive through the winter. They might do well in a plant case lined with a fine woollen net, with a myrtle or tiny fir tree to perch upon. They, like the Robins, are quarrelsome birds, and do not live well with others



ROBIN.

in a confined space. Titnices are such murderous little creatures, that it is cruel to put them with other birds, for, besides fighting with them continually, they will hang on to them and hug them round the neck, to rob them of any dainty food they are eating, to which they may take a fancy,



SKYLARK.

and torment them exceedingly. Robins and Larks can only be kept happily in an outdoor aviary. This should be constructed of iron and glass upon a basement of brick or stone, with an earthen floor beaten hard, and be warmed by pipes, so as to keep up an even temperature in cold weather. The glass should have wire within it, so as to be opened freely in summer, and

be shaded by blinds at pleasure, unless it is well sheltered by creeping plants without, and should be provided with wooden shutters for the winter. Within the aviary there should be a small fountain playing in the centre, with a basin for the birds to drink and bathe in, and plenty of dwarf shrubs and creepers for them to build and hide in. It is best to keep these in pots when practicable, in order to change them for fresh shrubs when they become spoiled. The seed should be put in bird-hoppers against the wall, and there should be shelves and perches for the birds to roost on, and in the breeding season, wicker baskets and boxes for them to build in. The floor of the aviary must be kept covered with sand and small gravel, and old mortar well dried and bruised is good for the birds also. Of course, anything belonging to the aviary must be as clean as possible, and the water always fresh and cool. In fitting up aviaries or cages, the natural habits and tastes of the birds which are to live in them must be carefully considered—their comfort is sometimes sacrificed to ornament—and they should always have shade as well as sunshine provided for them, and snug corners for those who love retirement. Care must be taken to exclude fog and damp, and in sweeping out the aviary, to avoid raising much dust, from which the sensitive lungs of many of the birds would suffer exceedingly. The air from a close stove or any noxious gas, too, would cause them much discomfort, if it did not stop their respiration altogether, so that means must be taken to secure good ventilation.

If we keep birds in captivity at all, it is our bounden duty to keep them as healthy and happy as possible; and unless we are well acquainted with their several wants and characteristic tastes, we cannot expect them to be our fond familiar friends, or to delight us with the exhibition of their natural beauties and talents. We must love our little prisoners and consult their happiness if we would entice them to treat us as friends, rather than jailers.

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## HINTS ON HERALDRY.

The science of Heraldry was formerly of much more importance than it is now: it was part of the education of every well-born person; and “even in the present day,” as Mr. Warren observes in the article on Illumination, “the education of a gentleman or lady can scarcely be complete without an elementary knowledge” of the Noble Science, as it was called in former ages. Illumination has also rendered it important that a lady should be able to read the colours of a shield and its bearings from the lines which indicate them, and that she should know how to draw ancestral arms from a description. Thus much help we are able to give in the space allowed for Heraldry in the *HOME BOOK*. For any further knowledge of this amusing science we must refer our readers to works on the subject, assuring them that many a curious fact in history, many a gallant deed, and many romantic incidents are recorded pictorially in the arms left to us by those who won and wore them in the ages long ago.

We need scarcely tell the educated young lady of the nineteenth century that "arms" owed their origin to the emblazoned shield of the mediæval knight, which served to identify him during battle in the eyes of his followers, when face and figure were disguised and hidden in his armour. Therefore the word "heraldry" is derived from the German *Heer*, a host or army, and *Heil*, a champion; and the word "blazon" from *Blāzn*, to blow a horn, as heralds were wont to do when a champion entered the lists at a tournament, declaring at the same time what the bearings on his shield were, that he might be recognized by the spectators. As armour ceased to be used, heraldry lost a great portion of its importance; the practical need for it was gone, but it was retained on plate, seals, carriages, &c., as a mark of good descent; and the preservation and knowledge of these hereditary arms were sometimes of immense importance. At a great trial to ascertain the rightful heir to a peerage, one of the principal links in the chain of evidence was found in his crest and arms.—But it is time we began our brief notice of the terms and signs of this most ancient science.

First we must observe that the ground on which a coat of arms is painted is called the **SHIELD**, a shield being the first object on which armorial bearings were painted. The heraldic shield is usually of this form—

The side opposite to the left hand of the person looking at it is called the *dexter* or right side; the side opposite to her right hand is called the *sinister* or left side. We have put the names on the shield annexed, to show more perfectly what we mean.

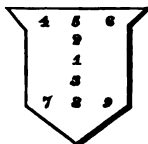


The shield has certain points on its surface bearing special names, so that any "bearing" may be put in the right place by a verbal direction, these points fixing the exact spot where an object in the arms may be placed.

The points are—

1. *Fess point*.....Exact centre of the shield.
2. *Honour point* .....Above the *fess*.
3. *Nombril point* .....Under the *fess*.
4. *Dexter chief*.....At the heraldic right hand.
5. *Middle chief*.....Above honour point.
6. *Sinister chief* .....In the left hand corner.
7. *Dexter base* .....At the bottom right hand.
8. *Middle base* .....In the middle.
9. *Sinister base* .....In the left hand corner.

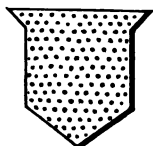
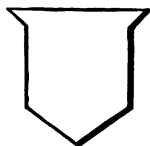
Refer by numbers to shield below.



Thus, if you were desired by an heraldic blazon to put a star on the *fess*

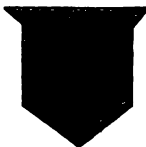


point, you would know that it meant the exact centre of the shield,—and so on.

Shield *Or*.Shield *Argent*.

### TINCTURES OR COLOURS

are expressed by lines, and metals by dots, or by a pure white shield. There are two metals and seven colours belonging to heraldry. The metals are gold, termed *Or*, expressed by dots, and silver, or *Argent*, by a plain shield.

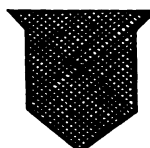
*Gules*.*Azure*.*Vert**Purpure*.

*Gules* or red is represented by perpendicular lines.

*Azure* or Blue, by horizontal lines across the shield.

*Vert* or Green, by diagonal lines from the *dexter chief* to the *sinister base*.

*Purpure* or Purple is represented by diagonal lines from the *sinister chief* to the *dexter base*.

*Sable*.*Tenny*.*Sanguine*.

*Sable* or Black, by perpendicular and horizontal lines crossing each other all over the shield.

*Tenny* or Orange, by diagonal lines from the *sinister chief* to the *dexter base* point, traversed by horizontal lines.

*Sanguine* or Blood-colour, by diagonal lines from the *dexter chief* and *sinister chief* crossing each other.

In correct heraldic descriptions the shields of sovereigns are emblazoned by giving the names of planets to the colours, thus—

*Or* is called *Sol*      *Gules* is called *Mars*      *Purple* is called *Mercury*  
*Argent* „ *Luna*    *Azure* „ *Jupiter*    *Tenny* „ *Dragon's head*  
*Sable* „ *Saturn*    *Vert* „ *Venus*    *Sanguine* „ *Dragon's tail*

The tinctures on the arms of nobles are designated by the names of precious stones, thus—

<i>Or</i> , Topaz	<i>Gules</i> , Ruby	<i>Purple</i> , Amethyst
<i>Argent</i> , Pearl	<i>Azure</i> , Sapphire	<i>Tenny</i> , Jacinth
<i>Sable</i> , Diamond	<i>Vert</i> , Emerald	<i>Sanguine</i> , Sardonyx.

### ROUNDLETS.



*Bezant. Plate. Hurts. Torteaux. Pomeis. Golps. Pellet. Orange. Guze.*

With regard to the **ROUNDLET**, the colours influence its name; for example—if the roundlet is of

<i>Or</i> , it is called a <i>Bezant</i>	<i>Gules</i> , called <i>Torteaux</i>	<i>Sable</i> , called <i>Pellet</i>
<i>Argent</i> , „ <i>Plate</i>	<i>Vert</i> , „ <i>Pomeis</i>	<i>Tenny</i> , „ <i>Orange</i>
<i>Azure</i> , „ <i>Hurts</i>	<i>Purple</i> , „ <i>Golps</i>	<i>Sanguine</i> , „ <i>Guze</i> .

These names will signify a roundlet of each especial colour.

### FURS.

Four furs are also used in heraldry.

*Ermine*—which is a field *argent* (or white) powdered with black spots, their tails terminating in three hairs, thus—

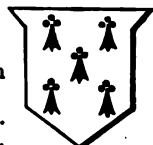
*Ermines*—when the field is *sable* and the powdering white.

*Erminois*—when the field is *or* (or gold) and spots *sable*.

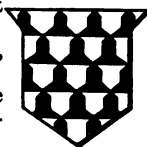
*Vair*—which is expressed by blue and white skins cut into the forms of little bells, ranged in rows opposite to each other, the base of the white being next to that of the blue. The cut at the side shows the heraldic fur, *Vair*.

*Vair* is usually of six rows: if there are more or fewer, the number is expressed.

The shield is sometimes plain and of one tincture; more frequently it is divided into portions by lines, which, according to their forms, are thus named:



*Ermine.*



*Engrailed.*



*Invected.*



*Wavy.*



*Nebule.*



*Champaine.*



*Embattled or Crenelle. Raguly.*



*Indented.*



*Dancette.*

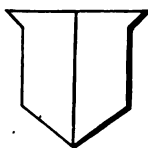


*Doostail.*

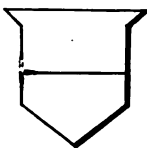
It would be well for the young student of heraldry to draw these lines

several times, so that when she meets in a blazon of arms with the mention of a line *wavy*, *engrailed*, &c., she may at once be able to depict it.

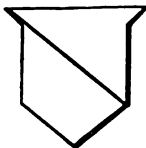
### DIVISIONS OF THE SHIELD.



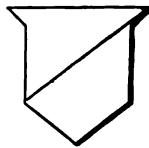
*Parted per Pale.*



*Parted per Fess.*



*Parted per Bend.*



*Per Bend sinister.*

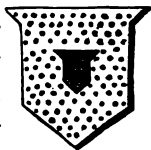
If the shield be divided exactly in halves by a perpendicular line, it is said to be parted *per pale*.

If divided by a horizontal line through the centre, *per fess*.

If by a diagonal line from the *dexter* corner to the *sinister* base, it is said to be parted *per bend*.

If it is parted by a diagonal line from the *sinister* corner to the *dexter* base, it is said to be parted *per bend sinister*.

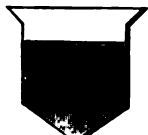
If the field is divided into four equal parts by any of the lines described above, it is said to be *quartered*. This may be done two ways—i. e., by a perpendicular and horizontal line crossing each other at the centre of the shield, when it is said to be quartered *per Cross*; or by two diagonal lines from the *dexter* and *sinister* corners crossing each other in the centre of the field: it is then said to be quartered *per Saltier*. The shield is often divided into many parts, in order to place in it the arms of several families allied to each other; it is then called *quarterly*, or a genealogical achievement. Our young readers have doubtless heard of the sixteen quarterings required to be possessed by those desirous of entering the Court circle of Vienna. If a gentleman marries an heiress, her arms are borne in a small inescutcheon or shield, called an *escutcheon of pretence*, exactly in the centre of the shield, on *fess point*; as the arms of Hanover used to be in those of England, and as shown in the engraving.



The chief forms borne on shields are called **HONOURABLE ORDINARIES**, and are—

The <i>Chief</i>	The <i>Bend sinister</i>	The <i>Chevron</i>
The <i>Pale</i>	The <i>Fess</i>	The <i>Cross</i>
The <i>Bend</i>	The <i>Bar</i>	The <i>Saltier</i>

With their several diminutives.



*Chief.*



*Pale.*



*Bend.*



*Bend sinister.*

The *Chief* must measure a third part of the field.

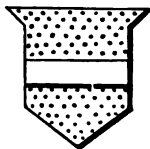
The *Pale* must measure a third of the width of the shield.

The *Bend*, must contain the fifth part of the field in breadth, if uncharged (*i. e.*, with nothing on it). If charged, it contains the fourth part.

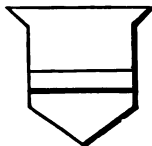
The *Bend sinister* contains the fifth part of the field in breadth, as the bend does.

The *Fess* contains the fourth part of the shield.

The *Bar* contains only the fifth part of the field, and may be in any part of it.



Fess.



Bar.

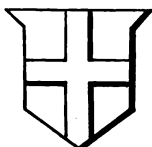
The *Chevron* is an ordinary which represents the two rafters of a house joined together; it occupies the fifth part of the field.

The *Cross* needs no description, but it should contain, when not charged, only the fifth of the field; if charged, it should occupy a third of the shield.

A *Saltier* is a diagonal cross, and must contain the fifth part of the field if uncharged; but the fourth if it be charged.



Chevron.



Cross.



Saltier.

These ordinaries have diminutives belonging to them, which you should also know.

The diminutive of a *chief* is a *fillet*, which must not exceed one-fourth of the chief in width, and is left at the bottom or lower part of the great ordinary.

The *pale* has two diminutives—the *pallet* (which is a narrow *pale*, half the width of the *pale*), and the *endorse*, which is the fourth part of the width of the *pale*.

The *bend* has three diminutives—the *bendlet*, which is half the *bend*; the *cost* or *cotice* (when two of them accompany a *bend*), which is the fourth part of a *bend*; and the *ribband*, which is part of a *cost*, or the eighth part of the field.

The *bend sinister* has a *scarp*, which is half its width, and the *baton*, which

is the fourth part of the *bend*, and which does not touch the edges of the shield, but leaves a space at each end.

The *bar* has two diminutives—the *barulet*, which contains half the *bar*, and the *closet*, which is the half of the *barulet*. A *bar* contains only a fifth part of the field, and is not obliged, like the *fess*, to be exactly in the centre of the shield, but may be in any part of it. When the shield contains a number of *bars* (for, unlike the *fess*, which must be alone, there may be many of them on a field), and they are alternately of metal and colour of even numbers, a shield is said to be "*barry*" of so many pieces, expressing the number.

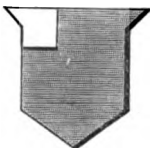
The diminutives of the *cheveron* are the *cheveronnel*, half its size, and the *couple-close*, the breadth of which is only the fourth part of the *cheveron*.

Our young readers will observe the importance of *exact* measurement in heraldic drawing by studying these rules, as they will see that the character of the ordinary is changed simply by a reduction in its size.

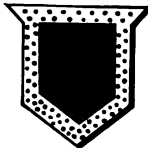
Besides these great or "honourable" ordinaries, as they are called, there are other heraldic figures, called Subordinaries, or simply "ordinaries" which are of ancient and honourable use. They are called—



Gyron,



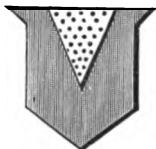
Canton,



Bordure



Fret,



Pile,



Planches,



Tressure,



Mascle,



Lozenge,



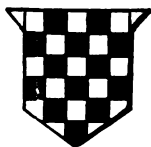
Fusil,



Annulet,

And some few others little used.

A shield is said to be "*checky*" when it is chequered like a chess-board, with squares of *argent* and a colour. Example:



Checky.

## DIFFERENCES.

We are come now to what are called the *DIFFERENCES* in coats of arms. These are marks by which bearers of the same coats of arms are distinguished from each other, and by which their nearness to the head of the race or principal bearer is ascertained. Ancient differences consist in *Bordures*, an edge or hem-shaped border all round the shield, containing a fifth of the field in breadth.

There are nine modern differences, showing the descent or birth of the bearer. They are for the

Eldest Son,	Second Son,	Third Son,	Fourth Son,	Fifth Son,	Sixth Son,	Seventh Son,	Eighth Son,	Ninth Son,
								
<i>Label.</i>	<i>Crescent.</i>	<i>Mullet.</i>	<i>Martlet.</i>	<i>Annulet.</i>	<i>Fleur-de-lis.</i>	<i>Rose.</i>	<i>Cross Moline.</i>	<i>Double Quarterfoil.</i>

Thus you will observe that the Prince of Wales bears the royal arms, with a *label*, as eldest son, at the top of the shield, as shown in the engraving.

These signs are repeated in such a manner as to clearly express descent. For example, the son of the eldest son uses a *crescent* with a *label* on it. Example:

The eldest son of the second son bears a small *crescent* on a larger one, &c., &c. You will observe the mode by reference to the engraving.



ARMS OF THE PRINCE OF WALES.

## EXTERNAL ORNAMENTS.

External ornaments of escutcheons are crowns, coronets, mitres, helmets, mantlings, *chapeaux*, wreaths, crests, scrolls, and supporters.

A **HELMET** is the true mark of gentle birth. Those of the royal family and nobles of Great Britain are open-faced and grated, and the number of bars serves to show the bearer's quality. Thus the king's helmet has six bars, and is in front, or facing the spectator; dukes' and marquises' have five bars in profile; all other peers, four bars.



BARONET'S OR KNIGHT'S HELMET. PEER'S HELMET.

ESQUIRE'S.

An open-faced helmet without bars belongs to a baronet or knight. The closed helmet belongs to esquires and gentlemen; it is seen in profile with the beaver down.

A **CHAPEAU** is an ancient cap of dignity worn by dukes, generally of scarlet velvet, lined and turned up with fur. It is frequently to be met with above a helmet instead of a wreath.

The **WREATH** is a kind of roll made of two skeins of silk twisted together, which the champions of old were wont to wear when equipped for tournaments. The colours were always those of the arms of the wearer. The wreath is placed between the helmet and the crest.



Chapeau.

The **CREST** was anciently worn on the knight's helmet; it now surmounts the shield or coat of arms. Ladies have *no* crest, and young ladies who use a crest on their note-paper make a great mistake. A lady uses arms, but no crest.

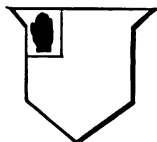
**SUPPORTERS** are the figures which uphold the shield. Only peers and Knights of the Garter and the Bath are allowed supporters, with some few special exceptions permitted for gallantry in war, &c.

Objects described in heraldry as *proper* must be painted in their natural colours.

The **SCROLL** bears the motto which belongs to the arms.

A baronet's coat of arms bears on it (in a *canton* generally) the arms of the Province of Ulster—*Argent*, a sinister hand *couped* at the wrist, erect, *gules*; because the title was originally bestowed by King James I. on those

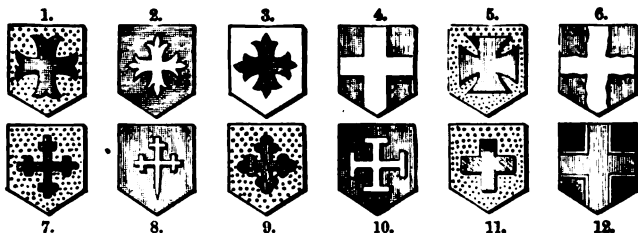
gentlemen who consented to pay a sum for the support of troops to defend that province against the Irish rebels. We believe the sum paid was a thousand pounds, or its equivalent at that period.



ARMS OF ULSTER.

## CROSSES.

There are a dozen different kinds of CROSSES used in heraldry, which we give below :



1, *Moline*  
2, *Patonce*  
3, *Flory*

4, *Cross*  
5, *Pattée*  
6, *Wavy*

7, *Croset*  
8, *Fitchy*  
9, *Bottonny*

10, *Potent*  
11, *Couped*  
12, *Voided*.

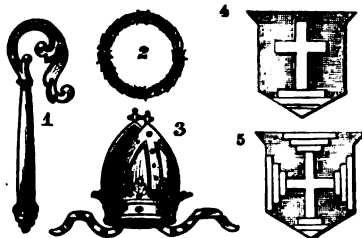
The bishop's crosier is of the form shown in the engraving (1).

A chaplet (2).

A mitre (3).

A cross on three *greices* (4).

A cross *degraded* (5).



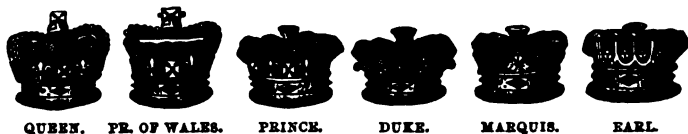
## CROWNS AND CORONETS.

The crown of Great Britain is a circle of gold bordered with ermine, enriched with pearls and precious stones, and heightened with four crosses *pattées* and four large *fleurs-de-lis* alternately. From these issue four large



diadems adorned with pearls, which close under a mound, surmounted by a cross *pattée*.

The Grand Seigneur bears over his arms a turban, enriched with pearls and diamonds, under two coronets, the first of which is made of pyramidal points heightened up with large pearls, and the uppermost surmounted with crescents.



The Pope has a tiara, or long cap of gold cloth, from which hang two pendants embroidered and fringed at the ends, *semé* (strewn with) crosses of gold. The cap is inclosed by three marquis's coronets—i. e., the triple crown—and has on the top a mound of gold with a cross surmounting it.

The coronet of the Prince of Wales was anciently a circle of gold set round with four crosses *pattées*, and as many *fleurs-de-lis* alternately; but since the Restoration it has been closed with one arch, adorned with pearls, and surmounted with a mound and cross. It is bordered with ermine like the Queen's crown. All the other royal sons and brothers wear a circle of gold bordered with ermine, heightened by four *fleurs-de-lis*, and as many crosses *pattées* alternately.

The coronet of a British princess is a circle of gold bordered with ermine, and heightened with crosses *pattée*, *fleurs-de-lis*, and strawberry-leaves alternately.



A duke's coronet is a circle of gold, bordered with ermine, enriched with jewels and pearls, and set round with eight large strawberry-leaves.

A marquis's is a circle of gold, bordered with ermine, set round with four strawberry-leaves and as many pearls alternately.

An earl's is a circle of gold, bordered with ermine, heightened with eight pyramidal points or rays, on the tops of which are as many large pearls. These are placed alternately with as many strawberry-leaves, only the strawberry-leaves are put lower down on the circlet.

A viscount's coronet is a circle of gold, bordered with ermine, with large pearls set close together on the rim: the number is not limited, a prerogative above the baron's, which is limited.

A baron's coronet is a circle of gold, (which was granted by Charles II.,) and is formed with six pearls set at equal distances on a gold circle bordered with ermine. Four pearls are shown in an illumination.

The eldest sons of peers above the degree of a baron bear their father's arms and supporters, with a label, and use the coronet belonging to his *second* title, if he has any, which they also bear. But all younger sons bear his arms only, with proper differences, and use no coronet or supporters.

Children bear their father's and mother's arms *quarterly*.

The first, or *dexter chief* corner, and the fourth, or *sinister base* corner, contain the father's arms. The second and third quarters the mother's arms, unless the heir derives his title and dignity from his mother.

If married people's arms are parted *per pale* instead of quarterly, as is the case when the husband expects to succeed to the hereditary property of his wife, the lady's arms must be on the *sinister* side of the shield. If he marries twice, the two ladies divide the *sinister* side *per fess*; the first wife's arms being *in chief*, the second *below*. If he marries three times, or more, the two first occupy the *sinister chief*, and the last wife (or wives) the *sinister base*.

Archbishops and bishops impale their own arms with those of their see, but give the *dexter* side, or place of honour, to the arms of the see.

If a lady of rank marry a commoner, their coats of arms may be set side by side in two separate escutcheons, but under one mantle or drapery, and the lady's may be ornamented according to her title.

The stars and badges of the orders of knighthood look very splendid emblazoned; they will be found in any "Peerage" or book on heraldry.

Our young readers have probably often noticed "hatchments" put up in token of death over entrances of houses. We will tell them what these signify to heraldic eyes.

A hatchment parted *per pale* has the ground without the escutcheon on the *dexter* side of the shield black, and the *sinister* white: it denotes that a gentleman is dead and has left a widow.

If the ground without the escutcheon on the *sinister* side be black, and the *dexter* white, it is the husband who is dead; moreover, the lady has a cherub above the hatchment instead of a crest.

When a bachelor dies, his arms are *all* placed on a sable ground, and his crest above them.

When a single woman dies, her arms are placed in a *lozenge* on a black ground, with a cherub over them.

When a widower dies, his arms are represented impaled with his late wife's, and the ground without is black. A crest over them.

A widow's are the same, only in a *lozenge*. She has a cherub instead of a crest.

If the person who is dead is the last of his or her race, a death's head is put above the hatchment—a mournful token of how all have passed away.

The helmet or coronet is put to show the rank of the deceased person.

Our chief aim in this very slight sketch of heraldry has been to assist young illuminators to understand a description or emblazoning of any coat of arms which they may wish to paint. But the subject is one worthy of some little study and attention, and a dictionary of heraldic terms can alone enable them to give a very accurate delineation of a coat of arms

merely described to them. For example, how could they draw a lion *statant, gardant*, unless they knew that the words meant "*standing* with all four feet on the ground, and looking *full face* at the spectator"?

An oak tree is said to be *englanté* when it is represented as bearing acorns.

A broken staff would be said to be *esclatée*.

A headless beast, the head apparently torn off by violence, is described as *etele*.

A beast is said to be *coward* if he has his tail between his legs.

*Croissant-contourné* means the half-moon, or *decrecent*, looking to the left side of the shield.

*Clymant* is said of a goat standing on its hind legs.

*Sejant* is an animal sitting.

*Slipped* means torn off, not cut smooth or even.

Animals are said to be springing when rising on their hind legs; fish, when placed in *bend*.

*Starved* means divested of leaves.

*Fulned* is wounded and bleeding.

*Fulning*, wounding, is applied to a pelican piercing her breast to draw blood for the purpose of feeding her young.

*Couped* is cut off smooth and even.

Our young readers will perceive by these examples the necessity of having an heraldic dictionary at hand in case they should be emblazoning or painting shields from description.

We have said that coats of arms reveal to those who can read them many a secret, and some amusing tales. Let us give the Drake arms as an example.

Sir Francis Drake was knighted by Queen Elizabeth after his return from the famous first voyage round the world. It became necessary that he should have a coat of arms, and the Heralds' College, finding him distantly related to Sir Bernard Drake, gave him the same crest, &c.—a *wyvern*.

Sir Bernard resented this assumption by his poor kinsman—he was perhaps jealous of his renown; and when he next met Sir Francis, he gave him a blow on the face in return for it. This insult reached the ears of Queen Elizabeth, who, to avenge as well as to honour her favourite, forthwith bestowed on him a new coat of arms emblematical of his great deeds, and ridiculing his mean-spirited kinsman. They consisted of a shield *sable, fess wavy*; two polar stars. The crest (on a wreath) was a ship sailing on a globe, held and guided round it by a hand from heaven; in the rigging of the ship a *wyvern hung by its heels*! The poetical feeling of the wavy *fess*, the black night and polar stars, and the heavenly aid vouchsafed to the adventurer, speaks volumes for the taste and feeling of the queenly herald.

The scallop-shells, the cross on the crescent, &c., signify a Crusader's arms. It was for fidelity to his liege lord in the wars of Palestine that the first Knight (afterwards Baronet) Foulis of Ingleby had given to him on a stainless field, pure *argent*, three laurel-leaves, with the motto, "*Je ne change qu'en mourant*;" the crest, a cross triumphant over the crescent.

Arms and mottoes which pun upon the bearers' names are called *canting*.

The Dalryells bear on their shield a gallows and man hanging. This singular bearing represented a gallant deed. In one of the Scotch incursions into England a friend of the Scottish king was made prisoner by the English, and hung in sight of his sovereign and comrades on Carlisle wall. The king frantically demanded if any brave knight of his following would rescue and bring back the corpse for Christian burial. They all stood mute. It would be going to certain death. "*Dalry!*" ("I dare!") replied a spearman, and boldly ventured forth to rescue the slain noble.

How he fought—how he bled—how his daring succeeded—are noted in history and in heraldry. He brought the beloved dead home to his sovereign's feet, and as he sank, bleeding and exhausted, beside the corpse, he received the honour of knighthood from the royal sword, and his descendants were bade cherish the memory of his daring by bearing the gallows and its precious freight on their shields, as they do, we believe, to this day, taking for their name his laconic answer, *Dalry!*

An ancestor of the writer's greatly distinguished himself in the wars with Spain, and her grandfather's crest retains the memory of it in the Spanish flag reversed, the crowns and castles upside down, held by an admiral's arm.

The arms first granted to Nelson were—*Or*, a cross *flory, sable*, a *bend gules*, surmounted by another *engrailed* of the field,\* charged with three bombs fired, *proper*. For the crest, a wreath of the colours (*i. e.*, of the shield, red and gold), the stem of a Spanish man-of-war *proper* [*proper* means of the natural colour], thereon inscribed, "*San Josef*," which was the name of the ship taken on St. Valentine's day by our greatest admiral.

After the battle of the Nile Nelson received an augmentation of arms, which gave him in addition a *chief* undulated *argent*, thereon waves of the sea, from which a palm tree *issuant* (in *middle chief*) between a disabled ship in the *dexter*, and a ruinous battery in the *sinister chief*. Crest, a naval crown (see Crowns) *or*, and the *cheleugh* or plume of triumph presented to him by the Grand Seigneur. Motto, "*Palmarum qui meruit ferat*."

The supporters were at first—On the *dexter*, a sailor armed with a cutlass and a pair of pistols in his belt, *proper*; the exterior hand supporting a staff, thereon hoisted a commodore's flag, *gules*. On the *sinister*, a lion *rampant* (standing on his hind legs), *regardant* (looking behind him), *proper*; in his mouth a broken flag-staff, therefrom flowing a Spanish flag, *or* and *gules*.

To these were added—In the left hand of the sailor a palm branch, and another in the paw of the lion, both *proper*; with the addition of a tri-coloured flag and staff in the lion's mouth.

These arms will suffice to show how great deeds are chronicled by heraldry, and will also serve as an exercise for drawing and illuminating them.

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\* Formed by an *engrailed* line on the *bend*, and of the same metal as the field—*s. e.*, *or*.

## ETIQUETTE.

This word carries with it a certain mysterious consequence. It arouses our strictest feelings of propriety, and we feel ourselves bound to treat it with solemnity, as a subject too sacred to be violated; indeed, the laws of etiquette being closely allied to those of honour, are well worthy of the respect with which they inspire us. Etiquette is but a modern name for the customs of society and the standard of manners, good breeding, and morals which the world demands. We may define it as a barrier which society draws round itself as a protection against offences which the law cannot touch. Lord Chesterfield, the great champion of *bon ton* in the eighteenth century, describes it as the result of much good sense, some good-nature, and a little self-denial for the sake of others, with a view to obtain the same indulgence from them.

The name "etiquette," signifying in French "a ticket," is generally supposed to have originated from a former custom which existed on state occasions, of delivering to each individual present a card or ticket, with instructions on the part he was to take in the proceedings. At times, when much ceremony was observed, this must have been a most needful precaution.

Although its leading principles are always the same, the small niceties of etiquette are constantly changing, according to the fashion and spirit of the age.

We may observe in history that the manners and habits of each period have their rise in, and take their tone from, the Court of the country, and thence work downwards into the social life of the people. A study of the changes wrought by time in the manners or in the every-day life of a nation serves as a very correct gauge by which to measure the advance of its civilization and refinement. Nothing gives a truer picture of its position among other civilized nations than a glance at the *vie intime* of the inhabitants, and a comparison of it with that of our own day.

In English history, for example, we find that there existed a strict etiquette as early as the mythical ages of King Arthur, though we know it by the more romantic names of gallantry and chivalry. Every young lady who is familiar with the "Idylls" will remember what marked respect and what gallant courtesy was due even in those remote ages of civilization to her own sex.

In the time of our Norman and Plantagenet kings it was the custom for the sons and daughters of the nobles to spend a few years either at the Court or at the castle of some distinguished nobleman. The object of this was not only to instruct them in professions and useful occupations, but also to perfect them in the manners, or, as we should call it, the etiquette, of the day. Rough though the mode of living then was, according to our ideas and

rude as were the manners of the time, the demands of chivalry, courtesy, and honour were obeyed with great strictness, and an infringement of them in any point would have incurred as much censure as would a breach of etiquette in these days.

Under our Tudor sovereigns we find the discipline in which young people were kept to have reached a very severe pitch. The young ladies were debarred every kind of liberty, and obliged to devote nearly all their time to strictly enforced study. They brought their knowledge of the learned languages to such high perfection as to be able to compose or converse in them under the auspices of tutors as stern, in many instances, as the proverbially severe Roger Ascham. In every other respect, too, their home discipline was superlatively harsh and severe. Children were not allowed to sit, or even to speak, in the presence of their parents; and, when exhausted with standing, the utmost they might do was to kneel on a cushion at the farther end of the room. Happily for them, etiquette forbade that they should be in their parents' presence, except for a short time and at stated intervals. An old writer remarks that the English treated their children "as if they had been born mad." They behaved to them as to brutes without reason, and inflicted the severest punishments for the most trifling offences. This, too, was the time when the mothers of families carried fans with handles a yard long, and inflicted merciless punishments on their daughters who were unfortunate enough, either consciously or unconsciously, to incur the parental displeasure.

In the reigns of the Georges, Court etiquette in England was immensely strict, and, in consequence, much tiresome ceremony pervaded society generally. We have a graphic picture of the formalities and restraints existing at the time in the pages of Madame D'Arblay's journal, which in many instances excites our pity for the writer herself and her equally unfortunate colleagues. At this period Court etiquette had reached its highest pitch of tyranny, as it did in France under Louis XIV. and Louis XV.; but since then its rigour has gradually declined: it varies still with the characters of different sovereigns and with the fashion of the day. The spirit of the present age is to do away with all form, ceremony, and outward magnificence, and consequently many of the old absurd and needless forms have now been given up. In private society the same alteration has taken place. Ceremony has been curtailed in every possible way; and our present etiquette consists rather in what is omitted than in what is done. The utilizing tendency of this inventive age, which economizes every moment of time, every inch of space, and every atom of material, will allow of no needless forms and ceremonies. It sifts away every superfluous word and action, and retains only what is actually needful—the root and kernel of good breeding and the laws of society.

Manner has, like every other art, been reduced to its simplest form, and the natural has now taken the place of the artificial and insincere. Though etiquette still retains its leading principles, its surrounding fetters and encumbrances have now fallen away. The chains of formality are loosened and the barriers of ceremony are broken down. The "polite-

ness" and "genteelism" of Mrs. Chapone's day are forgotten, and the reaction from her overdrawn propriety has set in. Whether this general liberty be an advantage to the world is a disputed point. We would not, however, wish it otherwise, nor would the most *judique* desire to exchange modern freedom for the irksome fetters by which their ancestors were straightlaced. The danger of the increased liberty is its liability to be carried too far, as unfortunately it has been in many cases by the English young ladies of the nineteenth century, who have taken a delight in setting all restraint and modesty at defiance; who, by their *fast* conduct and amusements, have been a disgrace to our nation, and who, by persevering in it, are on the road to bring their countrywomen into bad repute in our history. Every well-disposed girl should studiously avoid, in choosing her companions, those who have this still prevalent tendency; but should she ever be thrown in the way of such girls, she may take an opportunity of exerting her influence for good over them by discountenancing their proceedings, and showing a well-timed disapprobation of their conduct. She should treat with great coolness the behaviour of those she may, and probably will, meet with in the world who find amusement in vulgar practical jokes, who are noisy in their manner, conspicuous in their dress and appearance, and (to use an Americanism, for it best expresses my meaning) "larky" in their tastes and pleasures. Such girls as these are, as a rule, slaves to an inordinate love of admiration. All their ideas are engrossed in a desire for notice and attention, and all their energies employed in trying to obtain it. To take the very lowest view of such an existence as I have described, it is an unsatisfying life, being without a worthy aim or object, and is certain to end sooner or later in disappointment. I think most of my readers will agree with me that a young lady who exerts her thoughts and energies in some useful pursuit, to do some good in the world, and to be of use to others, will gain a far more enviable notoriety. She will shine as a steady light in the world, and be a valuable member of society, while a girl of the type I have named, though she may dazzle for the moment by her enterprise or wit, her independence and assurance, will soon forego respect and confidence, and in time be forgotten, if not avoided, by the world.

We must now speak more particularly of the modern social life of an English girl as it *ought* to be, and as we hope in the majority of homes it still is. The science of etiquette is one with which every young lady must be familiar to enable her rightly to take her position in the world. It is not, however, a study which can be, or would need to be, learnt by rules. It is, indeed, hardly possible to give many practical laws on the subject of etiquette, as it is rather felt and prompted by a natural dictate than an obedience to rule: it is the result of experience, not study. Every English girl will have been brought up with a natural *feeling* for the etiquette of her day, a natural respect for good manner, and a knowledge of the laws of society, so much so that experience and practice alone will be needed to perfect her in the intricacies of the science. The etiquette of the present day, moreover, is no very arduous lesson for her to learn. What she first needs to acquire is a good knowledge of the world, plenty of tact and thoughtful considera-

tion for others, and a sincere, self-possessed, yet easy and gracious, manner. All of these are best learnt by observation and experience. A young lady in her home, and with her family, has a certain responsible position to fill, albeit her responsibility is not of an irksome nature. She will find the use of her knowledge of etiquette when she shares the duties of entertaining guests at home. This will call her powers into action, as it will then be her mission to *lead*, instead of to follow, the stream of events. Her tact must direct her in this to do the right thing at the right moment. It must also guide her in the performance of all other small duties or services she can render to her friends—to supply their small wants, to be courteous and obliging, and to be ready at any time to devote herself “to all and to each one.” She may do much to make a party of young people of her own age pleasant, by originating whatever amusements or occupations she sees will be agreeable to each.

When on visits by herself to intimate friends, a careful attention to etiquette will be specially necessary to a young lady, and a few hints on the subject may therefore be useful. Somewhat different points of our subject will consequently need consideration.

The aim of the young lady visitor should be to make herself as agreeable a companion as possible, to study on every occasion the wishes and the convenience of her host and hostess, and to avoid being at any time troublesome to them. She should pay scrupulous attention to the habits of the house, and keep the hours regularly and exactly. Strict punctuality, which has been named *la politesse des rois*, is a point to which her natural good breeding should prompt her to pay particular attention, and it should be her rule, especially when visiting, to be ready for everything and to keep nobody waiting. Another nicety to which her tact will direct her is to observe when she might be in the way, and at times of the day when her friends are engaged, to leave them to write letters, &c. Yet when she can be in any way sociable or useful, she must always be ready to appear. She should try to be pleased with and grateful for everything that may be done to amuse her, and yet be able so fully to occupy herself as never to *require* amusing, nor to be dependent on her friends for it. At the same time she must be careful not to engross herself so entirely in her own pursuits as to make them tedious and disagreeable to others, or to prevent her playing her *rôle* in the circle of which during her visit she forms a part. To seem dull or bored, too, would be a great breach of the laws of good breeding; and even if she were to *feel* so, it would be entirely her own fault. She should consider it a duty to make everything go smoothly and pleasantly; and the more she is thrown with the world, the more opportunities will she have of promoting the happiness of others, and in so doing, her own also.

At balls and large parties the same leading principles of good breeding that have already been mentioned will hold good, and will only need adapting to circumstances and to fashion. In the crowded ball-room of the nineteenth century the etiquette is not formidable as it must have been in the days of stately minuets and graceful *pas de basques*—the days when elegant movements and graceful bearing were appreciated for their own sake. It



is now happily a young lady's privilege to enjoy herself at a ball in as easy a manner as she can, without either ceremony or restraint, her mind unburdened with complicated rules or with fear of criticism and observation. On this subject, therefore, little need be said. I would only remind a young lady to avoid making herself conspicuous in any way, either by her dress or behaviour; to take particular pains not to be dull, silent, or bored, but to pay the toll of her place in society, by being as cheerful and agreeable as lies in her power.

And this leads us to speak of a subject which, being a *sine quâ non* in all society, comes in some degree under the province of the laws of etiquette: I mean the art of conversation. It is true that this is an art with which some individuals and some nations are more particularly gifted than others; nevertheless, it is one which may either be acquired or improved. Conversation is the great vehicle of social enjoyment; it acts as an electric kindling of life between two minds. As our nation has been abused above every other for stupidity in this art, the English young lady would do well to vindicate the character of her race by making it her special study. Her power of being agreeable depends on the ease and vivacity with which she can converse. Her good sense should guide her in selecting suitable topics, and in adapting her conversation to her companions. An ancient writer remarks that "the tone of good conversation is neither dull nor frivolous. It is fluent and natural; sensible, without being pedantic; cheerful, without being boisterous; elegant, without being affected; polite, without being insipid; and jocose, without being equivocal."

Having now mentioned a few of the chief points to which our subject directs, I must, in conclusion, remind my readers that though the fashion in etiquette is ever changing with the times, though it changes year by year and little by little, though it varies with persons, places, and circumstances, and is only to be acquired by observation and experience, the *substance* of it is ever and eternally the same, and that the courteous manner and high breeding which spring from good sense and good-nature are "the cement and security of society."

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# GRAVER HOURS OF ENGLISH GIRLHOOD.

## THE GIRL AT HOME.

Graver hours of girlhood!—what are these? Are they not made up of moments which whisper that life is not given us to fritter away in frivolous conversation or idle amusement, but rather that Time is a great gift intrusted to us by the Author of all good, and that each of us must hereafter render an account of her stewardship?

Few girls in our day need to be reminded that they are not merely ornaments to society, and that their existence is to be something more than a dreary round of purposeless employments and wasted energies. On the contrary, there is a restless desire to “do good,” which leads many to look abroad into the wide field of misery, and to overlook the opportunities of usefulness which lie at their own threshold.

It is impossible but that the hearts of the young should be moved by the great question of the day—How to promote the happiness and alleviate the misery of the masses. Girls hear crying evils discussed, and what wonder that many among them long to “do some great thing” to wash away the leprosy of sin, and that some few would fain join those who penetrate the dark corners and the cruel habitations of our great over-crowded towns? But the work of the young and inexperienced is rather that of prevention than cure, and if they can make their own home—their own ignorant school children, the young servants, the aged and infirm of their immediate neighbourhood—happier and better, they are as surely doing God’s work as if they joined a Sisterhood or enlisted themselves, either by open vows or mental resolutions, to a life of self-sacrifice, of which their tender age has not permitted them to count the cost. There *may* come a time, when home duties make no claim—when long years of piety and the discipline of life’s trials fit the noble-hearted elder woman to stand face to face with the degraded, the deserted, and the forlorn; and, by the sanctity of years and position, she will then be shielded from the danger of infection, the evil of contamination, and the falsehood and imposture to which it would be both presumptuous and hazardous for the young girl to expose herself.

There is an old saying that “charity begins at home;” by which, perhaps, is meant that love’s labours are best learned at our own fireside; and this wholesome doctrine of home duties should be as little neglected by the many who look forward to becoming wives, as by the few who would devote themselves to good works. The selfishness and presumption of a girl who would make herself burdensome to a husband before she has qualified herself either to rule his household or to be intellectually his companion, is something which we cannot but fear will be taken account of as the source of much misery to families when the sins of the parents, their ignorance, their ex-

travagance, and irregularity will be visited even to the third and fourth generation. Home duties, then, should have the first place with girls, because home is the nursery in which they learn the lessons which will make their price beyond rubies, and their name blessed among their own daughters. Let every young girl, then, look well at home, and see whether she can make any one in it happier for her existence. Can she do nothing which would promote the good order and regularity of the household? Can she not perform some duty which would relieve her mother from care if done with punctuality and perseverance? Great events, it has been wisely said, come but seldom in our lives. It is the small daily trifles which make the happiness or misery of a family. We have known many young girls desirous of attaching themselves to an Order or Society, in which they would obey the most rigid rules, rising early, praying regularly, carrying out the strictest discipline of a mother superior, who "at home" are slothful in the morning, complaining of cold and of the weather, peevish at breakfast-time, late at prayer, contradictory and fault-finding, and unmindful of the least wish of a tender mother. By wasted energy and a purposeless life, they add to the restlessness, the weariness, and nervousness which characterize our era. And why is this? Because home duties in small matters are neglected, and humility, cheerfulness, and activity are neither prayed for nor practised. It is not unusual to hear a girl declare, "I am of no real use to any one;" but this is a self-condemnation which needs the closest examination. Have you younger sisters or brothers? Can you not promote their amusement and happiness? Can you not set apart half an hour to read with them, or select some particular study to pursue with them? Help them in their play, be patient with their waywardness, encourage them in obedience to those who are set over them, and your life will not be in vain: the influence you have gained in the nursery and in the school-room will last to the latest days, when younger sisters shall bring you their joys and their sorrows, and you shall share the former and alleviate the latter, and feel how truly God has made you of real use. But even where sisters are so nearly of an age as to call for no set duty to the younger, yet they may so arrange their time as to be helpers in the house, kind hostesses to visitors, steady friends, and ever-welcome guests. And according to the class of society in which they move, they may make their home attractive and promote its grace and economy. In these days, domestic employments may be pursued by the most accomplished girl, and they are by no means inconsistent with the highest mental culture. Our girls, it is true, are not the household drudges or the hard-worked cooks of the days of the Georges. Books of "Home Comforts" have revealed more than the treasured secrets of the "Family Receipt Book," and domestic economy is in itself an easier science than in former days; yet there is plenty of employment—plenty of useful and practical knowledge required from those who are to be the heads of households, and none should think their education finished who are defective in any branch of learning which relates to domestic management and the business of life. Notwithstanding the loud complainings of a melancholy reaction from the housekeeping province and good servants of our great-



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grandmothers to the intellectual education and bad servants of the present day, we can point with satisfaction to the noble and good who have shown us in Lancashire, sewing classes and in sick-rooms and industrial schools, that plain needlework and domestic economy are not entirely neglected. The bad housewife is not the accomplished musician whose touch is steady and whose ear is accurate, or the artist whose eye is straight and colouring harmonious; rather, the bad housewife, the extravagant woman, the confirmed dyspeptic, are made up of the slatternly girl, the daughter who always exceeded her allowance, and the self-indulgent lie-a-bed who ailed nothing save love of self, which led her, in common parlance, to "enjoy bad health."

It is impossible to give any general rules for home duties. Each household needs a different ordering, and each class of society has its own requirements; but it may be said that every class teaches the one immediately below it; and if the highest class be ignorant, uneducated, loving display, luxurious, and idle, the same spirit will prevail in humbler life. How great, then, is the responsibility of those who "guide the house"—how important the acquirement of home-happiness! No discernment, no observation, no self-denial, no drudgery is thrown away which secures such an end. Lavish upon your home, affection, attention, unselfishness, and banish from it every morbid feeling, all craving after excitement, ever remembering that

"The trivial round, the common task,  
Will furnish all we ought to ask:  
Room to deny ourselves—a road  
To bring us daily nearer God."

### SCHOOL TEACHING.

There is no work which will employ the graver hours of the girl with more certainty of blessing, both to herself and others, than that of Sunday-school teaching. It is a work of souls, wherein it seems scarcely possible that young zeal can outrun discretion or be brought into contact with evil hitherto unknown and unsuspected. To feed Christ's lambs, to give instruction to the young, is the great work of prevention and charity which shall hide a multitude of sins and save many a soul from destruction. What better labour of love, then, can be commended to girls? Let them undertake it for the honour of God and the good of their neighbour, and success will certainly attend their teaching. But some will say, "I am quite willing to do what I can, but I have never taught in a Sunday-school, and I should not understand it: I do not know how to set about it." "She hath done what she could," was the high commendation of Him, who did all that could be done for us. A willing mind is, therefore, the best preparation for any work; and it is more hopeful for a young teacher to enter on her duties in this spirit of humility, than to exhibit the self-reliance and conceit which have led many of the clergy to prefer the more experienced, and therefore the more modest, women as helpers in their Sunday-schools.

It being certain, then, that you have this willing mind, and are really desirous to do what you can, put yourself into communication with your parish priest. It may be that his school is so well supplied with teachers

as not to require your aid—it may be that he thinks you in some way unfitted for the work; and if your services are declined, you must be thankful that there are those who will do the work as well as yourself; but most probably your clergyman will thankfully accept your offer of help, and will make it easy for you to begin, by instructing you in the hours and details of the school, and selecting for you such a class and number of children as shall be suited to your age and powers of management.

Do not be disappointed or feel yourself depreciated if a small number of children are given you instead of the large class which you perhaps expected. There is no greater mistake than a large class. When children are beyond the range of the teacher's eye, much of her influence is lost, for children are guided by the eye as much as by the tongue, and a look is often more eloquent than speech. Ten or twelve, at the most, are as many as you can manage without distraction, and, even then, you will find it necessary often to make them move places, so as to bring each child in turn under your observation, otherwise a habit of inattention is formed, and "out of sight out of mind" is soon realized. The position of children in a class is a matter of some importance, and should be frequently changed, for when they are grouped around the teacher, as is commonly the case, those at the left hand will engross more attention than those at the centre and right hand. This changing may sometimes be managed where it is customary for children to take places, but even this practice is subject to the same defect, the clever children standing always in the most advantageous situation at the top of the class, and having always the eye and the ear of the teacher, while the slow and lazy escape observation. It is, however, difficult to give rules in this particular, as the size of the class and its general arrangement must, of course, depend much on the regulations of the superintendent, and every one engaged in Sunday-school teaching should make herself subordinate to the head of the school, and assist in supporting the authority and carrying out the plans of those to whom the school is intrusted.

Punctual and regular attendance must be scrupulously observed by the school teacher; especially must she strive to be present at prayers. If God's grace be needful for the scholar, much more for the teacher. Nay, all are children and scholars in God's sight, and all need the Father's blessing and the Master's help for the work before them. It is therefore your duty to be in time to take your part in morning prayer, and give the children their lesson in reverence and earnestness by your own devout manner and absorbed demeanour. Children will be taught far better how to pray by observing the personal devotion of those set over them, than by lynx-eyed glances or words of angry rebuke for inattention. Impatient expressions and a tone of fault-finding should indeed have no place in a Sunday-school. Sunday should be a day of quiet joy—a day in which the lambs of the flock enjoy the green pastures beside the waters of comfort—not a day of Egyptian bondage, in which the tale of bricks is delivered to hard taskmasters in the shape of cold business-like studies, conned over with the drudgery and toil of the every-day duties.

On that holy day the school-room should not be a place wherein to im-

part historical facts or bare evidences, but rather the gentleness, the sympathy, and the refinement which will naturally result from intercourse with you. If you remember that you are all baptized children of one Father, and that you are all heirs of a common inheritance, you will feel a sisterly interest in the little ones, and will guide them as elder sisters guide the younger, tenderly and gently, towards their Father's home. This will take from you all asperity and harshness, and even an imperfect lesson or a careless mistake will not arouse an angry or impatient reprimand.

At the same time, where Sunday lessons are to be learned, care must be taken that they are repeated perfectly. A great injury is done to a child by allowing a collect or a text to be said in a slovenly imperfect manner. Her sense of reverence, truthfulness, and thorough doing is blunted, and a habit of carelessness contracted which extends farther than the ill-said lesson. Do not, therefore, tax the memory overmuch by requiring many tasks from it. It is better in all lessons learned by rote to keep them below the standard of the quicker memories in the class, than to run the risk of overtaxing and discouraging the slower children. Sunday lessons should be looked upon as offerings to God, and the child should be taught to give Him the best; therefore be careful that the little that is done in the way of positive duty is done thoroughly well, and if any one wish to learn more by way of giving you pleasure, which is not unfrequently the case, never omit the reward of praise and encouragement.

As a general rule, the particular course of instruction is sketched out for the teachers by the clergyman, and it is an excellent plan, and no little privilege, when they receive weekly or monthly instruction from him, and are enabled to impart the knowledge received from him, and to reflect the general features of his teaching, so that the little ones may the better understand him hereafter in church and in confirmation examinations; but when this personal intercourse cannot be afforded, the young girl should carefully prepare her own plan and arrange her method of proceeding. The Holy Bible, the Prayer Book, and the Church Catechism will furnish "all those things which a Christian ought to know and believe to his soul's health," and each sacred season, such as Christmas, Easter, or Whitsuntide, as it revolves around the Sun of Righteousness, will suggest what portions of instruction should be measured out, so as to bring the great scheme of Christ's redemption before the child, and suit the explanation of it to her age and capacity. The Collect, the Epistle, and Gospel will also be carefully studied during the week, in order that the Church's services may be understood by the teacher, who will carefully instruct herself, that she may better instruct others, and all that she does will be premeditated and pre-arranged, because she knows that where there is no system there is but little success.

The Church Catechism will probably be your first lesson. No Sunday should pass without your having heard your class repeat a portion of this invaluable instruction—an instruction provided for and promised to them by the Church at their baptism, and therefore an instruction which you have no right to omit. It is the foundation and building up of all Christian doctrine, meeting the child at the very threshold of life, and carrying him



on through faith in Christ, through obedience in commandments, through prayer and sacraments, to the closing day. "Teach the child," says good Mrs. Trimmer, "that he has God for his Father, Christ for his Saviour, the Holy Spirit for his Sanctifier; and, whilst he is educated according to his baptismal vow, in the faith and practice of a Christian, he is safe in the ark of Christ's Church from the assaults of his spiritual enemies, so that, should his life be spared, he will grow up in the favour of God, or should he die, he will be admitted as an heir of glory into the kingdom of heaven." Long before a child can read, she may commit the Church Catechism to memory and learn the heavenly notes at your lips. Much of it will be entirely unintelligible, but the growth of mind and your explanation will unwind the strain and make it more and more musical as years go on, until, with Baxter, she may say at the close of life, ("Now it is the fundamental doctrines of the Catechism which I highest value and daily think of, and find most useful to myself and others. The Creed, the Lord's Prayer, and the Ten Commandments do find me now the most acceptable and plentiful matter for all my meditations. They are to me as my daily bread and drink." Before the child is capable of learning historical facts, you can tell her of the joys of heaven, and make her understand that there is an inheritance and a home laid up for her, to which she is entitled on certain conditions of faith and obedience; and thus the baptismal covenant will be the preparation for the Creed, in which you may instruct her in the history of the creation, and make her know God as the Father, the Redeemer, and the Sanctifier, and so fit her for the fuller revelation of God's word in the Sacred Scriptures. As soon as children can read with ease, let them now and then read the Catechism aloud from the Prayer Book. This will secure due emphasis and expression, and words hitherto unintelligible, from having been said by rote, will be rendered less obscure and unfold themselves in their just meaning. If you vary the question, and make the children substitute one expression for another, you will soon give a good simple knowledge of the Catechism, and your class will be led by this teaching to understand and to love the Bible, which will be your next lesson. To make the Sacred Volume a spelling-book is certainly a mistake, and is apt to produce both irreverence and weariness. When children are unable to read it, it is better for the teacher to read it to them, allowing each child in turn to repeat a verse after her in the very words of the text; for in reading the Bible we have no right either to add to or take from the words of the Book. Children love to dwell on Bible stories, and for very young children these narratives are the best means of awakening interest, and with the help of pictures you cannot fail to win their attention. From isolated histories, such as those of Joseph, Gehazi, and Samuel, you will teach them practical lessons of love, truthfulness, and devotion, and illustrate some point in their duty to God or to their neighbour, as they have already had it suggested in the Catechism. But as soon as a child can read, do not limit her Bible knowledge to mere historical facts or disconnected portions of Holy Writ, but let the Bible be the history of God's family — the Church — and let all your teaching turn Christward. Let historical fact, type, and prophecy all illustrate the great

doctrines of atonement and sanctification. No Bible lesson should be too long. Read little, but let that little suggest some duty, warn against some sin, and enforce that personal holiness without which no man shall see the Lord. After reading, question closely. It is only by catechetical instruction that you can know what is in a child's mind—its knowledge or its ignorance. A common mistake with Sunday-school teachers is to attach too much importance to oral instruction, and in this way to lose their own time and the children's attention by overmuch preaching. The old saying, that "what goes in at one ear goes out at the other," is never so applicable as in the case of oral instruction to young children. Many a promising Eutychus, who, if catechetically instructed, would have stood high up on the ladder of learning, has fallen down from the third loft into the deadness of ignorance by reason of long Sunday-school sermons. Ask questions, then, and even when the answer is wrong, and there is an evident misunderstanding of the subject, the surest way to make a lasting impression is to make the child teach herself by additional questions upon the wrong answer, which, after all, will generally have sufficient reason in it to enable an intelligent teacher so to break it up without departing from the main subject or allowing the child to be mortified at her ignorance. If possible, never suffer one who answers in turn to feel that she has made a mistake. Open rebuke or ridicule will often deter shy girls, and the replies will be elicited for the future only from the three or four sharp-witted children, who will assume to themselves the right of answering all the questions. Do not be so anxious about storing the memory, but try earnestly to draw out the higher life. Bible facts and mere word knowledge will produce in themselves no fruit, nor direct your children a step forwarder in their Christian course. What you must aim at is to apply their reading to the practical circumstances of their daily life.

The Collects are admirable forms of prayer, and these should always be the one lesson of the day, to be repeated perfectly and laid up as helps to prayer to the latest hour of life. Their connection with the Epistle and Gospel should be pointed out, and the children should be taught to use them as prayers during the week. This duty of prayer will be much enforced by you if you wish for success in your labour of love. Inquire whether the children pray morning and evening, and teach them some short form if you find the duty neglected. Do not take it for granted that the Lord's Prayer is always said intelligibly until you have ascertained the fact. Though frequently repeated collectively, it is often by force of habit said wrongly and carelessly. Neither does it follow that because children kneel down on entering and leaving church, that they really pray; therefore teach them what to say, so that the words of their lips and the meditations of their hearts may be acceptable to your Heavenly Father. Make them understand the Prayer Book in its threefold service of confession, intercession, and thanksgiving, and value it as the calendar of our blessed Lord, and mark its changing cycles and its recurring festivals and holy days. There was a time when the hum of the spinning-wheel was mingled with the sweet songs of David, and every woman could say the Psalms by heart; and

what better melody of the heart could we teach than these sweet Psalms? but if the task seem too great, at all events the Canticles and Hymns of the morning and evening service should be committed to memory as soon as possible. Then, when sight fails, and old age turns as it does to the times that are past, and "calls to remembrance its song," the language of the Prayer Book will be the dear old familiar strain which will keep them in the unity of the Church, and enable "young men and maidens, old men and children, to call upon the name of the Lord." There is nothing that children love so much as hymns, and these metrical Psalms are best learned orally from the lips of the teacher. The musical rhythm will so impress itself upon the ear, that by the time each child has repeated a verse the class will know it. Hymns for little children are invaluable for the youngest classes, but there are treasures new and old in our Church hymnals which should be stored up as soon as possible in the memory. It is a useful lesson for children to illustrate the verse of a hymn by a corresponding text of Holy Scripture. They generally like looking out verses in their Bibles, and it is well for them to be able to do this with readiness. To know the order of the Scripture books, the places in the Prayer Book, the proper lessons, and order of divine service will be of course taught early to the little ones, and therefore this lesson will not be difficult to the elder scholars.

It will be quite impossible for any Sunday-school teacher to meet her Sunday class week by week, without having her interest excited for each little one whom she is striving to win for Christ, and she will try in all ways to gain their affection and obtain an influence over them. She will sometimes gather them round her to talk of their own concerns, and to tell her their joys and sorrows. She will notice their failings and their tempers, so as to make her lessons and illustrations affect each one individually. She will recall the absent and visit the sick, and be to each a friend—to make the crooked straight and the rough places plain. In truth, she will be to them, not merely the "clever teacher," or the "young lady," but that time-honoured and loveliest work of God—the Christian gentlewoman.

## THE SICK-ROOM.

A due consideration of the graver hours of girlhood can scarcely be said to be complete without the mention of the nursing of the sick. The sick-room is indisputably the place where woman may be said to reign supreme; and yet how often does it happen that, when the hour of trial comes, she finds herself hindered by ignorance of the commonest principles and simplest rules of nursing! She has every disposition to take the part which Providence seems to have allotted to her, but a bewildering sense of ignorance makes her almost as helpless as the poor invalid, who looks vainly for relief. She has a yearning desire to be useful, but all attempts at usefulness utterly fail; offices dictated by the best of motives are invariably declined, efforts intended to soothe seem only to irritate, and the poor fond



HOME SYMPATHY IN TIME OF SICKNESS

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would-be nurse turns away distressed at her failure, hardly knowing to what to attribute it, and ready to weep because her wishes are thwarted and her love apparently misunderstood and slighted. A little more method, a little more even of the most elementary knowledge, might have turned the failure into a complete success, and a few plain rules, constantly borne in mind and patiently followed out, might have helped her to nurse the object of her affection not only with the tenderest love, but with judicious forethought and in the most welcome manner. There is no time when love lends such a charm to every word and act as the hour of sickness; and it is a sad thing when the sick are left to domestics, or even to hired nurses, to receive those attentions which love is so anxious to bestow, and so jealous of yielding to the services of the stranger. No practical advice on the subject of nursing, therefore, should be disregarded; and every earnest-minded girl should study to come to the bed of sickness as one who has thought about it beforehand, and endeavoured to fit herself for the duty of a nurse, and to be ready whenever God shall call her to the state of life which, more than any other, will call forth her tenderest sympathies and deepen her Christian graces. She will be calm, collected, well-informed, without noise or bustle, earnest but considerate, anxious but self-controlled, despising no knowledge which may fit her to nurse the dear ones of the household. For, indeed, the comfort of the sick depends mainly on what may seem at first sight small matters. No one can read the record of those who moved in and out among the sick soldiers of the Crimea, without observing how trifles and little things made or marred the comfort of the hospital. Nor let any one fancy that all this is easy, or to be attained without diligent observation and much painstaking. It is difficult for a strong healthy girl to imagine that anything more is needed in the chamber of sickness than her own genuine heartfelt sympathy, and often, alas! the experience of personal sickness becomes the best and most unfailing teacher. It is then that we know how to value the hand which can itself prepare the needful food with delicacy and refinement, suited to the taste which illness has made tenfold more fastidious than its wont; then we welcome the arm which can move us on our uneasy couch without, as it were, dragging us limb from limb; and then gladly hear the voice whose tone is distinct and clear, but neither loud or harsh, nor sunk to a whisper requiring a painful effort to understand. Happy they who without this hard teacher in the bitter school of experience can understand the wants and weakness of the sick, and have fitted themselves for the task—say rather the privilege—of depriving the hour of suffering of half its gloom!

How to anticipate the wants of the sick person, how to pass in and out of the room, how to smooth the pillow, how to raise the languid head, how to move the wearied body—these are matters for every ministering girl to make her study; and more, far more than this: when to urge obedience and when to give way, when to speak and when to be silent; to bear complaints without reply, and receive unjust and uncalled-for reproaches with patience and gentleness, all these are simple things; but on these depend the comfort of the sick and suffering, and these are the various stages of trial which test

the value and the patience of the nurse. It is scarcely possible to measure the degrees of weakness so as to make rules for all, but there is hardly any case in which fuss and bustle are not irritating, and the mere way of passing in and out of the room is a matter of real consequence. To move to and fro silently but unobtrusively, as if engaged in ordinary occupations (when necessary to move at all); to be neither nervously apprehensive nor studiously indifferent; to prevent all needless noise, especially the creaking and slamming of doors; to be able to prepare food, and to be ready with medicine and all appliances—these are matters of much importance, but yet matters too often forgotten, and which we commend to the careful attention of her who would desire to become a good nurse. It is impossible here to do more than supply a few plain recipes and hints for those who are desirous of instruction. Miss Nightingale's "Notes on Nursing," and many other valuable works, will supply much important knowledge to the inexperienced; all that we wish to do here is to awaken attention to the subject, so that in joy and in sorrow, in sickness and in health, the "Girl" may be "thoroughly furnished unto all good works."

### WORDS TO THE WISE.

Never wear a rustling dress or creaking shoes in waiting on the sick.

Be careful not to shake the bed or fidget near it, so as to touch, disturb, and needlessly fatigue the invalid.

Few noises are more irritating in sickness than noises from the grate. The making up the fire has frequently unmade sleep, and the startling effect of putting on coals destroys the effect of an opiate. It is better to put them on noiselessly one by one, than to disturb the patient by a coal *shoot*.

In voice and manner be gentle, and in spirit cheerful and hopeful.

Do not depress by tears, or allow your own feelings to alarm or distress the sufferer, but control looks, words, and actions.

Say nothing in the room, or even outside the door, which you would not wish the sick to hear, or would not say to them at another time. Hearing is often unnaturally quickened, and the mind is seldom in as torpid a state as the body.

Ask questions but rarely, and never occasion a needless effort for the sake of gratifying your own curiosity.

In giving stimulants or nourishment with a spoon, be careful to raise the bowl of the spoon, so as not to drop anything or annoy the sick person by untidy feeding.

Be sure to have all cups, spoons, and glasses clean and ready for use.

Make everything as attractive as you can from the nicety and freshness of the dish.

Do not allow jellies or rejected dainties to remain in the room under the impression that by and bye they may be fancied. This is a certain method of making the patient loathe the food.

If the sick person should take a dislike to you, be not disheartened at it, but, if possible, resign your place by the bed-side. It may be that you were

clumsy and awkward, over-anxious or painfully sympathizing, or perhaps none of these,—it may be only one of those unaccountable fancies which sometimes take possession of the sufferer, and which, as far as we can, it is our duty to treat with care and consideration.

### COOKERY FOR THE SICK.

**BEEF TEA.**—Take 1 lb. of beef, cut it very small or mince it, put it in a basin with a pint of cold water, let it stand three hours, then allow it to boil ten minutes, strain it, and it is fit for use.

**BEEF JELLY.**—2 lbs. of beef and 1 lb. of veal, fresh and free from fat; cut it into small pieces; add, if liked, salt, pepper, and a little spice; put it into a stone jar with a quart of water, tie a cloth tight over it, and boil it in a saucepan of water for six or seven hours; pour it into a sieve, and press the gravy from the meat with a spoon. When cold, a small quantity to be taken two or three times a day.

**PORT WINE JELLY.**—Take  $\frac{1}{2}$  pint of port wine, 1 oz. of isinglass, 1 oz. of gum arabic, 1 oz. of loaf sugar; let it simmer for a quarter of an hour, stirring it till the gum and isinglass are dissolved; then pour it into a plate or mould. When cold it will be quite stiff.

**GRUEL.**—Rub smooth a large spoon full of Robinson's oatmeal with two of cold water; pour over this a pint of boiling water, in which has been mixed three table-spoons full of milk; boil well for ten minutes.

**BARLEY-WATER.**—Wipe very clean, by rolling in a cloth, two table-spoons full of pearl barley; put it into a quart jug, with a lump or two of sugar, a grain or two of salt, and a strip of lemon-peel cut thin; fill up the jug with boiling water, and keep the mixture gently stirred for some minutes; then cover it down and let it stand until perfectly cold. In twelve hours, or less, it will be fit for use; but it is better when made overnight. When the barley-water is poured off it will be clear and soft. The jug may be filled with boiling water a second or even a third time.

**TOAST AND WATER.**—Take a piece of bread about an inch square, burn it thoroughly until it is like charcoal; when cool put it into a pint jug, and pour cold water over it.

**ARROWROOT.**—Mix a dessert-spoon full of arrowroot with a little cold water; have ready boiling water in a kettle, and pour it upon the arrowroot until it becomes quite clear, keeping it stirred all the time; add a little sugar. Where milk may be taken, it is very good made in the same way with milk instead of water, a dessert-spoon full of arrowroot, and  $\frac{1}{2}$  pint of milk; add a small bit of lemon-peel.

**CALF'S-FOOT JELLY.**—Boil a cow heel or two calf's feet in two quarts of water for seven hours; take all the fat and sediment from the jelly when cold. Boil it for twenty minutes with the juice of three lemons and the rind of two, pared very thin, about 6 oz. of sugar, the whites and shells of three eggs well beaten, and  $\frac{1}{2}$  oz. of isinglass; then add a pint of wine, and let it boil five minutes longer; cover it up close, and let it stand off the fire half an hour; pour it through a jelly-bag until clear; put it into a mould.



**ORANGE JELLY.**—To a pint of calf's-foot stock put a pint of strained China orange juice mixed with that of one or two lemons; add 6 oz. of sugar, the rinds of three oranges and one lemon pared very thin, the whites and shells of three eggs; mix these well together. When it boils, let it simmer a quarter of an hour; take it off the fire, cover up close, and let it stand twenty minutes; then clear it.

### APPLICATIONS FOR THE SICK.

**REFRESHING LOTION.**—Mix one table-spoon full of vinegar, one of *eau de Cologne*, and one of water. Linen rags or a pocket-handkerchief may be dipped in it and laid on the head.

**PEPPER PLASTER.**—For a pain in the face from cold, put a piece of flannel into a saucer with some gin in it; let it soak well, and then sprinkle it thickly with pepper; double it, and again sprinkle the pepper on the side next to the face; tie it on with a handkerchief, and keep it on all night. It leaves no mark on the skin.

**GINGER PLASTER, FOR FACE-ACHE.**—Take a piece of brown paper, cut it the size of the cheek, and put it into a saucer with just enough brandy to soak it; then powder the paper well with ground or grated ginger, put it on the face cold and wet, and let it remain on till the paper is dry. It will do no harm if it remains on all night.

**MUSTARD POULTICE.**—A table-spoon full of the best mustard mixed thick in boiling water; put it between two pieces of washed book muslin; to remain on from twenty minutes to half an hour. For a child it is much better to mix the mustard with some crumbs of bread well soaked in boiling water: it is not so pungent, and keeps on the place better.

**LINSEED MEAL POULTICE.**—Beat up the linseed well with boiling water, and make it into a flannel bag if for the chest or stomach. If to draw a wound, apply it without the flannel, with a few drops of glycerine or sweet oil to prevent the sticking, and change it at least three times a day.

**BREAD POULTICE.**—A piece of crumb of bread soaked in boiling water, the water to be strained off twice; squeeze it in a bit of rag until it becomes sufficiently dry; pour two or three drops of glycerine into it, and cover the whole over with oilskin, to exclude the air and keep it moist.

**FOR A CUT FINGER.**—Hold the injured part in cold water for a few minutes to cleanse away the blood; then carefully bring together the edges of the wound; hold them tight in that position, and bind together with thin strips of thin diachylon plaster.

**DRESSING FOR SPRAINED ANKLE.**—Pour cold water over, and then use rags soaked in cold water, put oiled silk over, and bind all up.

**BURNS.**—If thick whiting is at hand, apply it at once; it will harden and exclude the air. Or, wrap cotton wool rather tightly round. Or, wrap a large piece of rag, thoroughly soaked in cold water soap-suds, over the wounded part, adding more soap and fresh cold water as required by returning heat. No air must be allowed to get to the wound. Should the part burned be covered with clothing, the garment must not be removed, but

you must put the cloth dipped in soap-suds over it, and bind it all up together.

**TINCTURE OF ARNICA FOR BRUISES, &c.**—A tea-spoon full of the tincture should be mixed with  $\frac{1}{2}$  pint of cold water; wet a rag with the lotion, and put it on the bruised part. If the skin is broken, you must put  $\frac{3}{4}$  pint of water to a tea-spoon full of the tincture.

**FOMENTATION OF POPPY HEADS.**—Boil a hand-full of poppy heads in a quart of water for an hour, then dip flannel in it, and wring them out; apply them hot.

**FOR BED SORES.**—To prevent bed sores, wash the parts likely to be affected with brandy and water. Should the skin be grazed and become sore, lay upon it *linen* rag soaked in cold water, and over this place a piece of oiled silk, to exclude the air; when the rag becomes dry, wet it again. This plan persevered in will effectually cure without pain or trouble.

**FAINTING.**—If a person in fainting looks red or flushed, raise the head, and apply cold water and vinegar to it—one part vinegar, and three parts water; bottles of hot water to the feet, and loosen all the dress. If the face be pale, lay the person *flat* on the floor, sprinkle cold water on the face, also on the palms of the hands and behind the ears. Unfasten the dress; open the window and door, and do not allow people to crowd round. When recovering, give a little cold water, with fifteen drops of *sal volatile* in it, but never force them to drink—it might cause suffocation.

**POISON.**—Give a tea-spoon full of salt and the same of mustard; stirred in a tea-cup full of warm water: it will act as an emetic.

**HINTS FOR SICKNESS.**—When a person has been long in bed or restless, it is a great refreshment for two persons to pull the under sheet on each side smooth from under the body, and then at the foot.

When a room requires ventilation, and the window cannot be opened, it is a good thing to swing the door quickly backwards and forwards.

Perforated zinc boxes filled with pieces of gently-heated charcoal, re-heated every other day, and suspended near the head of the patient, will prevent unpleasant smells, and purify the air.

Muslin rags soaked in aromatic vinegar, and suspended near the door so as to be agitated by the draught, are refreshing in a sick-room. Rags soaked in chloride of lime and suspended from a cord across a room are a disinfectant in fever.

For obstinate bleeding of the nose nothing is so good as to hold up the arms of the sufferer, and place him with his back against the door.

To raise a person in bed, put a scarf or long shawl behind the pillow, and let two persons each take an end, and gently draw up the patient.

## READING TO THE SICK.

It is not unfrequently the case that the invalid mother or sister may request the young nurse to read to them from that Holy Book which is the comfort of the sick and sorrowful, and that she is puzzled as to *what* to read, when the Psalms and Lessons for the day may be too much for

the feeble attention of the sufferer. The Editor remembers how glad she would have been in her first experience of nursing to be able to turn in an instant to short, soothing, apposite passages. It may, therefore, be of use to the young readers of the HOME BOOK to give them a brief list of such for reference. They should, however, first make themselves well acquainted with them, that there may be no hesitation or delay, during which the patient may grow weary or drop off to sleep. They should not have to refer first to their list before reading. Nevertheless, supposing that it may be used as a previous preparation, the Editor ventures to offer the chapters and verses which her own experience has proved to be most acceptable to the sick. The Psalms are rich in passages. We select the following; a few verses from each.

EVENING PSALMS.—Psalm iv.; Psalm xvi., verse 7 to the end; Psalm xxxiv., verse 1 to end of verse 10; Psalm lv., verses 17, 18, and 22; Psalm lvi., verse 10 to the end; Psalm lxiii., verse 1 to end of verse 9; Psalm lxxvii., verse 1 to end of verse 14. GENERAL PSALMS.—Psalm xxiii.; Psalm xxv.; Psalm xxvii. to verse 12; Psalm xxxi., verse 21 to the end; Psalm xxxii., verse 1 to end of verse 8; Psalm xxxix., verse 10 to the end; Psalm xl., Psalm xli., verse 1 to 4; Psalm li., verse 1 to end of verse 13, or the whole Psalm if not too long for the patient's strength; Psalm lxi.; Psalm lxxii., verse 12 to end of verse 19; Psalm lxxxiv.; Psalm lxxxvii., verse 1 to end of verse 12; Psalm xc., verse 12 to the end; Psalm c.; Psalm cxiii., part or all of the Psalm; if divided, the first thirteen verses. Psalm civ., if not too long; Psalm cxi.; Psalm cxiii.; Psalm cxvi. (a Psalm of thanksgiving for convalescence); Psalm cxvii.; Psalm cxviii.; Psalm cxix., verses 1 to 8, verses 17 to 24, verses 25 to 32, verses 73 to 80, 105 to 112, 129 to 136, 137 to 144, 145 to 152, 153 to 160, and 169 to the end; Psalm cxxi.; Psalm cxxx.; Psalm cxliii., verse 1 to end of verse 11; Psalm cxlv.; Psalm cxlvi.; Psalm cxlviii. Isaiah xxv., verse 1 to end of verse 8; xxvi., verse 1 to end of verse 4; xxxv.; xl., verse 1 to end of verse 11; xliii., verses 1, 2, 3, 4, 11, 15, 25. Ezekiel, xxxiv., verse 11 to end of verse 16. Hosea, xiv., verse 4 to the end. St. Matthew, vi., verse 24 to the end; xi., verse 26 to the end; xxv., verse 1 to end of verse 13; verse 13 to the end; xxvi., the Agony, verse 36 to 47. St. Luke, v., verse 18 to end of verse 26; vi., verse 20 to verse 28; vii., verse 11 to end of verse 16; xi., verse 5 to end of verse 13; xii., verse 32 to end of verse 40. St. John, xiv., verse 1 to verse 14, verse 15 to the end; xv., verse 1 to verse 9; xvii. I. Cor., xv., verse 19 to end of verse 28; also verse 51 to the end. I. Thessalonians, iv., verse 13 to the end; v., verse 16 to end of verse 23. Hebrews, xii., verse 1 to end of verse 14. St. James, v., verse 7 to the end. I. St. Peter, v., verse 6 to end of verse 11. Revelation, vii., verse 9 to the end; xxi., verse 1 to end of verse 7; xxii., verse 1 to end of verse 7.

Seeking out and selecting from these passages will doubtless suggest many others to our young nurse. It is well also to learn hymns of the best kind—Keble's and Heber's, for example—by heart, that you may be able to repeat them in the twilight or firelight, in a low, soft, but clear voice. There is something very soothing in good hymns thus repeated.

There are so many excellent devotional books that we need not name any in particular for your use, as the patient would most likely have a choice of her own ; but we would enforce on all the readers of the HOME BOOK the necessity of studying reading aloud as an accomplishment—first and most important of all—since in the chamber of sickness it is really a precious gift.

And now our volume has reached its close ; containing much of the “studies, work, and healthful play,” which good old Dr. Watts deemed essential to the progress and happiness of the young. We can but hope that our contributors may have catered pleasantly and faithfully to English Girls, and that the work, which has been conducted with a sincere wish for their pleasure and improvement, may become emphatically THE HOME BOOK OF THE UNITED KINGDOM.







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